

ICABM2024

International Conference
of Applied Business and Management

Proceedings of the International Conference of Applied Business and Management



June 2024 | Porto - Portugal

Info: www.isag.pt

Proceedings of the International Conference of Applied Business and Management (ICABM2024)

20th and 21st of June 2024 | Porto, Portugal

Edited by

Ana Pinto Borges, PhD and Elvira Vieira, PhD

Copyright to the authors, 2024. All Rights Reserved.

No reproduction, copy or transmission are allowed without written permission from the individual authors.

Abstracts, Extended Abstracts and Full Papers were read and selected by Scientific Committee of the ICABM2024. All manuscripts went through a double-blind peer review process to be presented at the Workshop.

Further copies of these proceedings can be consulted at:

<https://icabm24.isag.pt/en/book-of-proceedings/>

DOI: [HTTPS://DOI.ORG/10.58869/2024.ICABM.02](https://doi.org/10.58869/2024.ICABM.02)

ISBN: 978-989-54164-9-3 | ISSN: 2184-7428

SUPPORT: ELECTRONIC | FORMAT: PDF / PDF/A

EDITOR: ISAG - EUROPEAN BUSINESS SCHOOL

PUBLISHER: ISAG - EUROPEAN BUSINESS SCHOOL

RUA DOS SALAZARES 840, 4100-442 PORTO, PORTUGAL

TABLE OF CONTENTS

Presentation: ISAG – European Business School	i
Presentation: Consuelo Vieira da Costa Foundation	ii
Presentation: International Conference on Applied Business and Managementiv	
Ethics & Malpractice Statement.....	v
Communications	1
Session – “Innovation and Sustainability: Urban and Cultural Experiences and Practices”	1
<i>Assessing Physical and Attitudinal Accessibility in Porto and Vila Nova de Gaia: Visitor and Resident Perspectives.....</i>	<i>1</i>
<i>How to enhance Museum Experiences: Co-Creation with Sensory-Impaired Visitors</i>	<i>3</i>
<i>Purchase decision process: consumer involvement and the perceived risks of habitual wine consumers.....</i>	<i>5</i>
<i>Slow Food Lab – Portuguese Ark of Taste: an Sensorial Organoleptic Test</i>	<i>8</i>
<i>The effect of sustainable HRM on employees’ proactive behavior and organizational citizenship behavior for the environment: A study on the Metal Sector in Portugal</i>	<i>10</i>
Session – “Sustainability, E-Government, and Market Dynamics”	12
<i>The model of sustainable development of territories.....</i>	<i>12</i>
<i>Does social capital remove tourism barrier for people with disabilities? Evidence from Italy23</i>	<i>23</i>
<i>The Importance of Sustainable Marketing Mix in the Activities of Polish Food Companies25</i>	<i>25</i>
<i>The Impact Of E-Government Attributes, E-Government Trust, and E-Government Satisfaction on The Adoption Of E-Government Services In Ho Chi Minh City, Vietnam .</i>	<i>35</i>
<i>Bullish or Bearish? does Investor Sentiment Impact Energy Company Profit Spread</i>	<i>45</i>
Session – “A Destination Redefined – Digital Nomads, Apps, and Tourism Investment”	47
<i>An insight into the Journey of Digital Nomads in Portugal.....</i>	<i>47</i>
<i>Apps as travel companions: What motivates or hinders their use?</i>	<i>57</i>
<i>How tourism capital investment affects different pillars of decent work? Evidence from European Union countries</i>	<i>59</i>
<i>Port Wine – New Horizons and New Markets: A Case Study.....</i>	<i>61</i>
<i>SPA’s Brand and Happy Experience and the Importance of Consumer Health Care.....</i>	<i>64</i>
Session – “Innovative Accounting Practices and SDG Reporting in Organizational Management”	67
<i>The reporting of SDGs in Portuguese municipalities: a longitudinal study.....</i>	<i>67</i>
<i>Exploring Activity-Based Costing Adoption in Seaports: A Comparative study.....</i>	<i>77</i>
<i>Financial Literacy: Study Concerning Students Attending a Portuguese Higher Education Institution.....</i>	<i>89</i>
<i>The impact of ESG Scores in Firm Valuation: Emerging markets in Eastern Europe.....</i>	<i>104</i>
<i>Agency Relations in the Adoption of Vendor Managed Inventory: Perspectives and Control Mechanisms.....</i>	<i>119</i>
<i>Marketing Plan for the Company JAVR Inspeções Automóvel.....</i>	<i>130</i>
Session – “Innovations and Challenges in Sustainable Tourism Management”	132
<i>Mass Tourism in World Heritage Sites: The Case of Sintra</i>	<i>132</i>
<i>Olive oil tourism in Beira Interior Region – the actual supply</i>	<i>141</i>

<i>Sustainable Development Goals and Business Sustainability in Tourism– exploratory insights</i>	151
<i>Sustainable Management in Tourism – preliminary insights about Events in Portugal...</i>	162
<i>The use of ICT in creative tourism – The case of two UNESCO Creative Cities</i>	174
<i>The Business Continuity Assumption and Its Assessment – An Overview</i>	178
Session – “Marketing and Brand Management Insights”	180
<i>Communication and brands with longevity: preliminary insights in cross-border regions context</i>	180
<i>How Cool are Portuguese Telecommunications Brands? A Factorial Analysis</i>	182
<i>Influencer Marketing on Social Media: The Impact of the Success of Brands</i>	185
<i>Internal marketing and relationship management in the organizational context: a preliminary study</i>	188
<i>The Effects of Perceived Personalization in Omnichannel Retail</i>	190
Session – “Consumer Preferences, Organizational Optimization, and Sustainability”	194
<i>Evaluation of visual attention and consumer preferences towards the offer of a traditional dessert in Hermosillo, Sonora</i>	194
<i>Finding a mix of renewable energy for different stakeholders by applying multi-criteria techniques</i>	204
<i>Relevant aspects for an optimal organization of the company.</i>	207
<i>Environmental Sustainability and Business Efficiency in Waste Firms</i>	209
Session – “Organizational Behavior and Societal Impact”	211
<i>Residents Perceptions of Digital Nomadism Impacts</i>	211
<i>Risk Perceptions Differences between Generations within the COVID-19 Pandemic</i>	213
<i>The Effect of Capital Structure on Firm Value: A Study of Companies Listed on PSI20 and IBEX5</i>	215
<i>The influence of choice factors on student decision-making of Vocational Education in Portugal</i>	229
<i>The Value Co-creation in HEI Organizational Management</i>	231
Session – “Innovative Approaches in Management and Economic Development”	241
<i>Integration of AI in Supply Chain Management: A Case Study of Amazon's Innovative Approach</i>	241
<i>Multivariate statistical analysis in ecological business models; an assessment of key factors in green companies in Colombia</i>	257
<i>The Paradoxes of Personalization in Digital Marketing: a Comparative Analysis between Generations</i>	276
Session – “Competitive Advantage, Sustainability, and Transparency in Business Management”	278
<i>Bus Fleet Maintenance and Project Management</i>	278
<i>Can Location be a Competitive Factor for Hotels in Low-Density Territories? A Study in Alto Alentejo</i>	293
<i>Transparency as a key factor through agri-food and forestry system</i>	295
Session – “The Future of Work: Sustainability, Well-being, and Employee Motivation”	320
<i>Green Human Resource Management and The Iso 14001 Subtopic Contributing to Sustainable Development: A Bibliometric Approach</i>	320
<i>Quality of life at work in the health sector: a study of some of its consequences</i>	323
<i>Social Sustainability: Fostering Employee Well-Being in Contemporary Business Environments</i>	325
<i>The motivations of professionals in the hospital sector: A quantitative study</i>	328
Session – “Perspectives on Sustainability, Branding and Consumer Behavior”	341

<i>Advancing and sustaining an academic career: Perspectives of female academics</i>	341
<i>Perspective of Social Media in the Influence of Decisions to Purchase Beauty Products in Fortaleza (Brazil)</i>	343
<i>Redefining Work and Travel: An Holistic Review of Digital Nomadism.....</i>	347
<i>Forecasting CO2 Emissions in Spain's Industrial Sector Using Machine Learning models</i>	349
<i>Managerial Skills and Vocational Training on the Performance of Small and Medium-Sized Enterprises: Evidence from European Union</i>	351
<i>Petroleum Profit Tax and Foreign Direct Investment In Nigeria</i>	352
Session – “Digital Transformation, Accounting, and Innovation in Business Management”	373
<i>Does professional accounting management mitigate Financial Constraints? Analysis for Small Businesses in Spain</i>	373
<i>Strategic Implications for Members of Fruit and Vegetable Producer Organisations in the Province of Huelva from the Perspective of the Institutional Theory of Organisations....</i>	376
<i>The application of the Metaverse in Health: A Systematic Review of the Literature</i>	379
<i>Motivations in Way of St. James.....</i>	382
<i>Digital transformation in the management of Buenos Aires ports.....</i>	384
<i>Effects of digitalization on business models and sustainability of the fishing industry</i>	395
Session – “Shaping a Sustainable Business World: Perspectives & Practices”	402
<i>Corporate Sustainability Reporting Directive: the perception of Portuguese accountants</i>	402
<i>Exploring Non-Financial Incentives and Motivational Strategies:</i>	405
<i>A systematic review of the literature.....</i>	405
<i>Sustainability and Ethics in Integrated Annual Reports – A Preliminary Study.....</i>	418
<i>The Furniture Sector in Portugal and Europe: From Characterising the Sector to Proposing a Training Course for Managers of Micro SMEs</i>	421
<i>The taxation of crypto-assets according to the personal income tax.....</i>	423
Session – “The Future of Business, Technology & Society”	436
<i>Attributing Anthropomorphic Characteristics to Customer Service Chatbots.....</i>	436
<i>Bibliometrics of research in the field of Data Envelopment Analysis (DEA) in the military and defense industry.....</i>	452
<i>Measuring The Quality of Electric Vehicle Charging Services in Portugal: Application of The Servqual Model</i>	467
<i>The impact of managing expectations and priority decisions for the Olympic Games: A nightmare for sustainability?</i>	469
<i>Urban-rural reciprocity relations: A study for a new integrated model.....</i>	482
Session – “Sustainability and Performance Measurement”	484
<i>Portuguese car trading companies: which performance factors matter?.....</i>	484
<i>A multidimensional construct to measure capabilities of exporting firms.....</i>	503
<i>How to measure tourism sustainability? Proposal of a tourism sustainability index for Portugal</i>	505
<i>Using a maturity model in a bicycle component manufacturing company to assess supply chain sustainability</i>	520
<i>Beyond Burgers: A Historical Analysis of Food Advertising as A Tool of Americanization in The Turkish Press (1950s-1960s).....</i>	523
Session – “Innovative Approaches in Accounting, Auditing, and Financial Management”	536
<i>Key Audit Matters disclosure in the Portuguese Public Health Sector.....</i>	536
<i>Green intellectual capital and organizational sustainability: a bibliometric study</i>	551
<i>An analysis of the accounting degree study plans designed on the skills of public accountants</i>	565

<i>Exploring New Horizons in Corporate Hedging: Integrative Strategies and Future Research Directions</i>	<i>576</i>
<i>The perceived usefulness of internal audit in the performance of Portuguese public hospitals</i>	<i>580</i>

Presentation: ISAG – European Business School

ISAG -Instituto Superior de Administração e Gestão - is an establishment of private higher education polytechnic, created in October 1979 and officially recognized by Decree-Law nº. 375/87 of 11th December.

As a conclusion of a fusion process started in November 2000, which had as first stage the merger by incorporation of the founding entities ESE/ENFOC in June of 2005, there occurred the merger of ISAG – Instituto Superior de Administração e Gestão and ISAI – Instituto Superior de Assistentes e Intérpretes in a single institution of higher education with the designation of ISAG – Instituto Superior de Administração e Gestão.

ISAG has as fundamental objectives the education, the divulgation and the development in the areas of Science Management, Applied Languages, Tourism and Hotel Management in the Northern Region of the Country, through the implementation of a philosophy of higher education that prepares students for the exercise of highly qualified professional activities.

Currently, ISAG takes advantage of a strong image with the business market as an establishment of higher education specialized in the areas referred above, which means that it has been able to impose itself on the labour market and in the business environment, as a reliable institution and that has been fulfilling its institutional mission. For this purpose, ISAG has been paying constant attention to the needs of the society and the Portuguese economy, giving special consideration to those relevant to the construction of the European Union and globalisation of markets. Thus, the institution recently assumed the designation of ISAG – European Business School.

Presentation: Consuelo Vieira da Costa Foundation

The Consuelo Vieira da Costa Foundation (FCVC) is a private and non-profit foundation created on April 3, 2018, and recognized by the Presidency of the Council of Ministers on September 21, 2018 (Order No. 9392/2018).

FCVC started its activity on September 13, 2019, with the statutory purposes of carrying out activities to promote, develop and support initiatives of a predominantly social, cultural and scientific research nature, in the fields of teaching, education and professional training.

With these purposes in mind, the Foundation operates in the following areas:

Social | Support for young people in the pursuit of their studies at the level of higher education, through the awarding of Social Scholarships and the awarding of young people with Merit Scholarships.

Education | Creation of the Senior University Consuelo Vieira da Costa.

Culture | Carrying out interventional and inclusion actions in society, enabling access to culture.

Research | Creation of the Center for Research in Business Sciences and Tourism (CICET).

Mission

Contribute to the development of society, particularly in the social, cultural, educational and scientific research domains.

Vision

To be identified and recognized as a reference institution at national and international level, oriented towards the promotion and involvement of the community and for the production and dissemination of scientific knowledge.

Values

- I. Respect and Humanism
- II. Ethics, Responsibility and Social Inclusion
- III. Sustainable development
- IV. Quality and Innovation

About CICET - FCVC

The Research Center in Business Sciences and Tourism / Research Center in Business Sciences and Tourism, designated by the acronym CICET - FCVC, is a research center without legal personality and non-profit, created by the Consuelo Vieira da Costa Foundation.

CICET is primarily dedicated to promoting and carrying out applied research in the areas of Business Sciences, Hotel Management and Tourism and transversal areas.

CICET - FCVC started its activity in October 2020 and has sought to increase its number of researchers (through the establishment of cooperation protocols), its scientific production, as well as the applicability of its studies in local, regional, and national policies.

Presentation: International Conference on Applied Business and Management

On June 20th and 21st, 2024, the fifth edition of the International Conference on Applied Business and Management (ICABM2024) was held at ISAG - European Business School in Porto, in partnership with the Research Center in Business Sciences and Tourism of Consuelo Vieira da Costa Foundation (CICET-FCVC). This edition featured 85 presentations from both national and international researchers representing various countries including Algeria, Argentina, Chile, Colombia, Spain, France, Italy, Mexico, Nigeria, Pakistan, Poland, Portugal, Saudi Arabia, Tunisia, Turkey, the United Kingdom, and Vietnam.

The Organizing Committee curated a scientific program with a robust multidisciplinary approach, aiming to enhance scientific knowledge in management from a broad perspective and to foster collaboration and networking among researchers. The main research areas presented at ICABM2024 included innovation, sustainability, marketing, tourism, digital business, management, accounting, economics, technology, performance management, and human resources.

The first day's Plenary Session was delivered by Keynote Speaker Alma Velarde Mendivil, PhD (University of Sonora, Mexico), on the theme "Corporate Social Responsibility and Consumer Markets." For this edition, ICABM2024 allowed researchers and attendees to participate both in person and online.

Researchers at ICABM2024 had the opportunity to submit their work in two formats: full papers and extended abstracts. All submissions underwent a peer review process. Accepted and presented papers will be published as an e-book and subsequently submitted for indexing in Web of Science – Clarivate Analytics (WoS), Scopus (Elsevier), and other scientific databases.

Ethics & Malpractice Statement

The International Conference on Applied Business and Management encourages the best standards of the scientific procedures, and the higher standards of communication and publication ethics. The Organizing Committee of the ICABM2024 takes measures against any publication malpractices.

The ISAG – European Business School and the Research Center in Business Sciences and Tourism (CICET – FCVC), as organizers of the ICABM2024 take responsibility and duties of guardianship over all stages of publishing the Proceedings of the International Conference on Applied Business and Management. ISAG – European Business School, as publisher of the book series, is committed to ensuring that the associated revenue (such as advertising, reprint or commercial rights) do not influence editorial decisions.

Concerning the ICABM2024, all submitted papers that are to be presented in the Workshop and published in the Proceedings of the International Conference on Applied Business and Management are subject to a double-blind peer-review system, with rules and review forms previously approved by the Organizing Committee. The review process is objective and clear. The ICABM guarantees the confidentiality of submitted manuscripts, ensuring blind reviews. Manuscript acceptance is constrained by legal requirements. Copyright infringement and/or plagiarism will not be tolerated.

The official full Ethics & Malpractice Statement of the ICABM2024 can be found at:
<https://icabm24.isag.pt/en/publication-ethics-malpractice-statement/>

Committees

Organizing Committee

- Ana Pinto Borges
- Bárbara de Sousa
- Bruno Miguel Vieira
- Elvira Vieira
- Rosa Conde
- Svitlana Sousa Ostapenko
- Sónia Soares (Technical support)

Scientific Committee

- Adriana Perez-Encinas, Autonomous University of Madrid, Spain
- Albertina Monteiro, ISCAP, Polytechnic Institute of Porto
- Alcina Nunes, UNIAG e Instituto Politécnico de Bragança
- Alexandra Correia, Instituto Politécnico de Viana do Castelo, UNIAG and CITUR
- Ana Pinto Borges, ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC); IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit
- Andreia Teixeira, Center for Health Technology and Services Research
- António Azevedo, Universidade do Minho
- António Cardoso, Universidade Fernando Pessoa
- António Cunha, ISAG – European Business School and Research Center in Business and Tourism (CICET-FCVC)
- António Lopes de Almeida, ISAG – European Business School and Research Center in Business and Tourism (CICET-FCVC)
- Atilla AKBABA, Izmir Kâtip Celebi University, Turkey
- Bentouir Naima, Ain Témouchent University, Algeria
- Bruno Sousa, Instituto Politécnico do Cávado e do Ave

- Carla Silva, Instituto Politécnico de Viseu
- Cláudia Cardoso, Instituto Politécnico do Cávado e Ave
- Elvira Vieira, ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal; IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal
- Emmanuel Mogaji, Keele University, UK
- Fernanda A. Ferreira, UNIAG, School of Hospitality and Tourism of Polytechnic Institute of Porto
- Feyza Ağlargöz, Anadolu Üniversitesi
- Gareth Barrera Sanabria, Fundación Universitaria Compensar
- Inês Lisboa, ESTG, Politécnico de Leiria, Centre of Applied Research in Management and Economics
- Isabel Neira Gómez, University of Santiago de Compostela
- Jean Moussavou, La Rochelle Business School and Laboratory LEGO – University of Western Brittany, France
- Joana Resende, FEP – Universidade do Porto
- João Lopes, UBI Universidade da Beira Interior and NECE-UBI
- João Pedro Cordeiro, ESCE – Instituto Politécnico de Setúbal
- João Pedro Tomaz Simões, Center for Technology, Restoration, and Enhancement of Arts and ISLA UI&D in Tourism, Management, and Marketing
- Jorge Esparteiro Garcia, Instituto Politécnico de Viana do Castelo
- Jorge Lopes, ISAG – European Business School and CICET-FCVC
- Jorge Remondes, ISCAP, Polytechnic Institute of Porto
- José Alberto Claro, Universidade Federal de São Paulo
- José Gabriel Oliveira Andrade Júnior, Universidade do Minho
- Karlen Khachatryan, Yerevan State University, Republic of Armenia
- Manuel Fonseca, CICET-FCVC and Instituto Politécnico de Viana do Castelo
- Márcia Lemos, ISAG – European Business School and CICET-FCVC
- Maria Covadonga Villasol, Universidad Complutense de Madrid
- Maria Antónia Rodrigues, ISCAP, Polytechnic Institute of Porto

- Maria de Lurdes Sarmento, Nova School of Business and Economics
- Maria Madalena de Abreu, ISCAC Coimbra Business School
- Myriam Ertz, University of Quebec at Chicoutimi
- Mohammed El Amine Abdelli, University of Western Brittany ,Western Economics and Management Laboratory -LEGO, France
- Muhammet ERBAY, Selcuk University Faculty of Tourism, Turkey
- Özgür İcan, Ondokuz Mayıs University
- Pau Balart, Universitat de les Illes Balears
- Paula Rodrigues, Universidade Lusíada – Norte
- Paulo Mourão, Universidade do Minho
- Paulo Ribeiro Cardoso, Universidade Fernando Pessoa and Universidade Lusíada – Norte
- Piotr Tworek, University of Economics, Katowice
- Rodriguez Crespo, Autonomous University of Madrid, Spain
- Shajara UL-Durar, University of Sunderland, UK
- Sofia Gaio, Universidade Fernando Pessoa
- Sónia Silva, NIPE – Escola de Economia e Gestão, Universidade do Minho
- Susana Mesquita, ISAG – European Business School and CICET-FCVC
- Vardan Aleksanyan, Yerevan State University
- Victor Tavares, ISAG – European Business School and CICET-FCVC
- Viktorija Skvarciany. Faculty of Business Management at VILNIUS TECH, Lithuania

Communications

Session – “Innovation and Sustainability: Urban and Cultural Experiences and Practices”

Chair: Susana Mesquita

Assessing Physical and Attitudinal Accessibility in Porto and Vila Nova de Gaia: Visitor and Resident Perspectives

Susana Mesquita. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal; GOVCOPP – Research Unit in Governance, Competitiveness and Public Policies, Portugal. susana.mesquita@isag.pt

Elvira Vieira. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal; IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal. elvira.vieira@isag.pt

Ana Pinto Borges. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC); IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal. anaborges@isag.pt

António Lopes De Almeida. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal. lopes.almeida@isag.pt

Abstract

Methodology: The research addresses a notable gap in empirical studies that evaluate multiple destinations simultaneously, focusing on accessibility issues. By identifying various constraints that influence how accessibility is perceived, the study aims to offer actionable insights and strategic recommendations for stakeholders across both public and private sectors. As defended by Bellato and Cheer (2021) it seems fundamental to make an inventory of the current urban tourism offer in terms of infrastructural barriers and constraints and to project the possibilities for improvement. Data for this study were gathered through a questionnaire survey conducted in the historic centers of both cities on October 26, 2022, with a total of 1595 respondents. The analysis included two regression models and both exploratory and confirmatory Factor Analyses.

Results: Key findings reveal that 67.1% of respondents were tourists, 17.7% had special needs, and 68.0% knew someone with special needs. The results highlight the necessity for the cities to clearly communicate and provide accessible products and services. On

the other hand, as pointed out by Zhang et al. (2019), it is necessary to understand this potential market with enormous opportunities for future growth. Notably, satisfaction with physical accessibility tends to decline with age, especially among those who are not tourists or who do not know someone with special needs. This underscores the importance of targeting this niche market to promote more sustainable and inclusive tourism practices.

Research limitations: This study on accessible tourism in Porto and Vila Nova de Gaia faces limitations such as a potentially non-representative sample, temporal constraints of data collection, subjective survey responses, and a lack of comparative and longitudinal data, all of which may impact the generalizability and depth of the findings.

Originality: Despite the increasing attention to accessibility, some individuals and groups are yet excluded and socially marginalized by society (Gillovic & McIntosh, 2020). This paper addresses a significant gap in the existing literature by providing an empirical evaluation of both physical and attitudinal accessibility in the interconnected tourist destinations of Porto and Vila Nova de Gaia, utilizing a comprehensive survey to capture the perceptions of a diverse group of visitors and residents, and offering actionable insights for improving accessible tourism practices.

Keywords: *Accessible and Inclusive Tourism; Physical Accessibility; Attitudinal Accessibility; Urban Destinations; Tourist Perceptions.*

Acknowledgements: This study was conducted as part of a funded project (NORTE-06-3559-FSE-000164) by the Northern Regional Operational Program (NORTE 2020), Portugal 2020 and the European Union, through the European Social Fund. The authors are deeply grateful to ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET-FCVC) for all the support.

References

- Bellato, L., & Cheer, J. M. (2021). Inclusive and regenerative urban tourism: capacity development perspectives. *International Journal of Tourism Cities*, 7(4), 943-961. <https://doi.org/10.1108/IJTC-08-2020-0167>
- Gillovic, B., & McIntosh, A. (2020). Accessibility and inclusive tourism development: Current state and future agenda. *Sustainability*, 12(22), 9722.
- European Commission. (2014). Economic impact and travel patterns of accessible tourism in Europe - Final Report. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/d04fbb3d-8d15-4fe3-b554-844bde75c171/language-en/format-PDF/source-search>. Accessed January 16, 2023
- Zhang, Y., Cole, S., Ricci, P., & Gao, J. (2019). Context-Based Leisure Travel Facilitation among People with Mobility Challenges: A Self-Determination Theory Approach. *Journal of Travel Research*, 58(1), 42-62. <https://doi.org/10.1177/0047287517741004>

How to enhance Museum Experiences: Co-Creation with Sensory-Impaired Visitors

Susana Mesquita. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal; GOVCOPP – Research Unit in Governance, Competitiveness and Public Policies, Portugal. susana.mesquita@isag.pt

Abstract

Purpose: This study explores the antecedents of co-creation in museums for people with sensory impairments (PwSI). It aims to enhance understanding of how museum-related and visitor-related factors influence the co-creation experience for PwSI. Few studies provide insights on factors that facilitate or hinder co-creation during museum visits (e.g., Argyropoulos & Kanari, 2015; Blume-Kohout et al., 2015; Fortuna et al., 2023; Mesquita et al., 2022; Mullens & Glorieux, 2019; vom Lehn, 2010).

Methodology: the research utilizes a survey conducted among people with visual and hearing impairments who visited museums in the past three years. Questionnaires were administered both face-to-face in Portugal and online to respondents in Portugal and abroad (N = 254). Linear regression analysis was used to examine the data

Results: The study found that visitor-specific constraints, such as the type and level of impairment, and museum-specific factors significantly influence various dimensions of co-creation for PwSI. These influences vary across different dimensions of co-creation

Research limitations (if applicable): The study's sample is predominantly from Portugal, which may limit the generalizability of the findings to other geographic regions. Future research should include a more diverse sample

Originality: This research extends co-creation theory to the context of museums and PwSI, identifying key antecedents that influence co-creation. It provides strategic recommendations for museum managers to foster more inclusive and value-added visitor experiences

Keywords: *Museums; People with sensory impairments; Co-creation; Antecedents.*

References

- Argyropoulos, V. S., & Kanari, C. (2015). Re-imagining the museum through “touch”: Reflections of individuals with visual disability on their experience of museum-visiting in Greece. *Alter*, 9(2), 130–143. <https://doi.org/10.1016/j.alter.2014.12.005>
- Blume-Kohout, M. E., Leonard, S. R., & Novak-Leonard, J. L. (2015). When going gets tough: Barriers and motivations affecting arts attendance. In *Arts Attendance in the Nation: Barriers, Motivations, and Survey of Arts Participation*. Nova Science Publishers, Inc.

- Fortuna, J., Harrison, C., Eekhoff, A., Marthaler, C., Seromik, M., Ogren, S., & VanderMolen, J. (2023). Identifying Barriers to Accessibility for Museum Visitors Who Are Blind and Visually Impaired. *Visitor Studies*, 26(2), 103–124. <https://doi.org/10.1080/10645578.2023.2168421>
- Mesquita, S., Caldeira, A., & Carneiro, M. J. (2022). What facilitates or constrains co-creation in museums? The case of people with visual impairments. *Disability & Society*, 1–24. <https://doi.org/10.1080/09687599.2022.2157704>
- Mullens, F., & Glorieux, I. (2019). No interest, no time! Gendered constraints to museum visits in Flanders. *Loisir et Société / Society and Leisure*, 42(2), 244–265. <https://doi.org/10.1080/07053436.2019.1626036>
- vom Lehn, D. (2010). Discovering “Experience-ables”: Socially including visually impaired people in art museums. *Journal of Marketing Management*, 26(7-8), 749–769. <https://doi.org/10.1080/02672571003780155>

Purchase decision process: consumer involvement and the perceived risks of habitual wine consumers

Marina Francisco. Polytechnic of Porto, ISCAP, Portugal. almar_mfv@hotmail.com

Sandrina Francisca Teixeira. CEOS.PP, Polytechnic of Porto, ISCAP, Portugal. sandrina@iscap.ipp.pt

José Luís Reis. University of Maia, Portugal; CEOS.PP, Polytechnic of Porto, ISCAP, Portugal. jlreisg@gmail.com

Zaila Oliveira. University of Maia, Portugal; CEOS.PP, Polytechnic of Porto, ISCAP, Portugal; Christus University Center - UNICHRISTUS, Fortaleza, Brazil. zailaoliveira@gmail.com

Sara Teixeira. CEOS.PP, Polytechnic of Porto, ISCAP, Portugal. sarat@iscap.ipp.pt

Abstract

Purpose: Global wine consumption has increased over the years. In 2021, Portugal reached an annual per capita consumption of almost 52 liters, followed by France, with an average consumption of around 47 liters of wine. However, Italy, in addition to having the third highest per capita consumption of wine, produces more wine than any other country in the world. In 2022, the volume of Italian wine production amounted to more than 49 million hectoliters (Statista, 2023). Currently, more than a third of all wine consumed globally is produced in another country, signifying a significant change in wine consumption patterns (Ohana-Levi & Netzer, 2023). The main wine exporters in 2019 were Italy, Spain and France, collectively representing 54% of the global market, while the largest importers were Germany, the United Kingdom and the United States (Carrasco et al., 2023). Therefore, to respond to this clear growth trend in the sector, it is considered important to deepen research into consumer involvement and perceived risks. Therefore, this study aims to verify the purchasing decision process of habitual wine consumers. Specifically: 1) explores the perceived risks that most affect habitual wine consumers; and 2) studies consumer involvement with wine. It is worth mentioning that the wine sector is competitive and demanding, and the search for new business opportunities involves renewal and adaptation to the current market. Furthermore, the literature identifies wine as a product whose acquisition involves a series of factors that imply the perception of risk in the appropriate choice of the product, compromising consumer decisions and determining behavior. Perceived risk significantly influences consumer behavior in relation to wine consumption (Nieto Villegas et al., 2023); Staub & Siegrist, 2022; Gupta & Duggal, 2020). Furthermore, factors such as perceived benefits, value for money and convenience play a crucial role in shaping consumers' attitudes towards wine, affecting their purchasing decisions (Le Fur et al., 2016). However, regardless of the product, the consumer's decision-making process encompasses all activities that precede the moment of purchase, in which the individual intervenes, rationally or emotionally, with the aim of choosing based on their needs. This process

has three stages: pre-purchase, purchase and post-purchase (Quintanilla et al., 2014). As it is a product that cannot be evaluated by its internal characteristics until the moment of consumption, there is a perception of greater risk when the consumer makes his choice (Barber & Almanza, 2006), with a psychological risk that refers to the impact of being judged by the chosen wine (Bauman et al., 2019). Consumers' relationship with wine is multifaceted and influenced by several factors. Studies show that consumers associate their wine tourism experiences with subsequent wine preferences, emphasizing the importance of creating memorable wine tourism experiences to increase consumer engagement and loyalty (Connolly, 2019). Emotions play a significant role in consumers' wine choices, with positive experiences influencing preferences, especially for organic and vintage organic wines, preferred by women and environmentally conscious individuals (Picard et al., 2018). Wine consumption is deeply emotional and often occurs in social settings, with intrinsic and extrinsic factors impacting consumer emotions during consumption, highlighting the importance of understanding these emotional connections for consumer science and industry (Rahmani et al., 2019). Furthermore, consumers' purchasing choices are influenced by attributes such as gender, educational status, brand, price, place of production, harvest, and certification, emphasizing the need to focus on quality and brand when marketing wine products (Niimi et al., 2019).

Methodology: A quantitative research approach was adopted, involving a non-probabilistic convenience sample, with 237 regular wine consumers from Portugal and Spain. To measure “consumer involvement” the WIP scale developed by Bruwer et al. was used. (2014), which classifies consumers between “high involvement” and “low involvement”. The variable “perceived risk” was measured by a scale with 5 items: “The wine does not taste good”; “The (economic) value does not correspond to the wine”; “The people I share it with don’t like wine”; “This wine causes a headache” and “Let others judge the wine I chose”.

Results: Regarding involvement with wine, the study reveals that around 80% of respondents have extensive involvement, which means that this product satisfies basic needs and is valued by consumers. Wine is interesting and important, it gives pleasure when buying and consuming it, they consider it a gift for themselves, or it allows them to leave a good impression among friends and acquaintances. Perceived risk is a factor that affects the consumer's purchasing decision process. In this study two conclusions are clear: first, in general terms, the perceived risk of habitual wine consumers is high and, second, two items, “The wine does not taste good” and “The economic value does not correspond to the wine” were those with the highest average. These two items measure functional risk and economic risk, respectively. When consumers know the brand, the perceived risk is better and decision-making is simplified, but when faced with the unknown, regular consumers of wine that are highly involved suffer a higher perceived risk.

Originality: This study focuses on the importance of understanding the most relevant risks for wine consumers, considering that it is a product that cannot be evaluated by its internal characteristics until the moment of consumption.

Keywords: *Purchasing decision process, consumer behavior, wine sector, perceived risk, consumer involvement*

References

- Barber, N. M. S y Almanza, B. A. (2006). Influence of Wine Packaging on Consumers Decision to Purchase. *Journal of Foodservice Business Research*, 9(4), 83-98. DOI: 10.1300/J369v09n04_06.
- Bauman, M.J., Velikova, N., Dodd, T. y Blankenship, T. (2019). Generational differences in risk perception and situational uses of wine information sources. 57 *International Journal of Wine Business Research*, 32(2), 247-265. DOI: 10.1108/IJWBR-03-2019-0022
- Bruwer, J., Burrows, N., Chaumont, S., Li, E. y Saliba, A. (2014). Consumer involvement and associated behaviour in the UK high-end retail off-trade wine market. *The International Review of Retail, Distribution and Consumer Research*, 24(2), 145-165.
- Carrasco, I., Castillo-Valero, J. S., Carchano, M., & Córcoles, C. (2023). Recent evolution of wine exports in a turbulence period: A multiregional input-output analysis. *Agricultural and Food Economics*, 11(1), 6. <https://doi.org/10.1186/s40100-023-00248-9>
- Connolly, M. (2019). *Factors influencing consumer wine choice: The case of wine tourism*. Books/Book Chapters. https://doi.org/10.1007/978-3-319-75462-8_3
- Gupta, V., & Duggal, S. (2020). Impact of perceived risks and benefits: A case study of wine consumption patterns in the Indian context. *Journal of Wine Research*, 31(1), 67–83. <https://doi.org/10.1080/09571264.2020.1723070>
- Le Fur, E., Outreville, J., & Lecat, B. (2016). Perceived risk and the willingness to buy and pay for “corked” bottles of wine. *International Journal of Wine Business Research*, 28. <https://doi.org/10.1108/IJWBR-08-2015-0031>
- Nieto Villegas, R., Bernabeu Cañete, R. L., & Rabadán Guerra, A. (2023). *The impact of chemophobia on wine consumer preferences explored through the case of sulphites*. <https://hdl.handle.net/10578/34914>
- Niimi, J., Danner, L., & Bastian, S. (2019). Wine leads us by our heart not our head: Emotions and the wine consumer. *Current Opinion in Food Science*, 27, 23–28. <https://doi.org/10.1016/j.cofs.2019.04.008>
- Ohana-Levi, N., & Netzer, Y. (2023). Long-Term Trends of Global Wine Market. *Agriculture*, 13(1), Article 1. <https://doi.org/10.3390/agriculture13010224>
- Picard, D., Moreira, C., & Loloum, T. (2018). Wine Magic: Consumer Culture, Tourism and Terroir. *Journal of Anthropological Research*, 74, 000–000. <https://doi.org/10.1086/699943>
- Quintanilla, I., Berenguer, G. y Gómez, M. A. (2014). *Comportamiento del consumidor*. Editorial UOC.
- Rahmani, D., Loureiro, M., & Gil, J. (2019). *Relationship between wine-evoked emotions and consumers’ preferences and willingness to Pay*. <https://doi.org/10.22004/ag.econ.289662>
- Statista. (2023). Countries with highest wine consumption per capita. *Statista*. <https://www.statista.com/statistics/232754/leading-20-countries-of-wine-consumption/>
- Staub, C., & Siegrist, M. (2022). How health warning labels on wine and vodka bottles influence perceived risk, rejection, and acceptance. *BMC Public Health*, 22(1), 157. <https://doi.org/10.1186/s12889-022-12564-8>

Slow Food Lab – Portuguese Ark of Taste: an Sensorial Organoleptic Test

Rui Rosa Dias. Instituto Superior de Administração e Gestão - EBS; CICET – FCVC, Portugal. ruirosadias@isag.pt

António Lopes de Almeida. Instituto Superior de Administração e Gestão - EBS; CICET – FCVC, Portugal. Lopes.almeida@isag.pt

Kevin Hemsworth. Instituto Superior de Administração e Gestão - EBS; CICET – FCVC, Portugal. kh@isag.pt

Abstract

Purpose: This research focuses on the potential distinctiveness of Portuguese regional gastronomic raw elements catalogued in Slow Food (SF) - Ark of Taste and their 'conventional' counterparts. Consequently, the main question that arises is if, they can be legitimately and consistently promoted as emblems (icons) of traditional/regional Portuguese gastronomy? Could those differences contribute to an increase in notoriety and greater knowledge of its comparative properties/benefits contribute to its identity preservation and also to generate greater evidence and attractiveness for the territories of origin, from a gastronomic/cultural/tourist and economic perspective?

The research specific objectives were: i) operationally, are there any substantive sensorial differences in the tasting process of these elements compared to their 'conventional' counterparts - which could result in a richer, or even unique, tasting/sensory experience? How intense are the hypothetical differences in each of the dimensions and sensory attributes to be considered? ii) Which sensory dimensions/attributes could stand out the most as promotional arguments? iii) The offer/menu of Restaurants (traditional/regional) that emphasizes SF - Ark of Taste raw elements could be the more structural, consistent, and effective promotional means; iv) will gastronomic critics have more relevant role in this direction?

Methodology: Data (N=10) was collected through a sensorial organoleptic test held on April 23, involving a panel made up of cooks, restaurant managers and gastronomists. All indispensable conditions for carrying out the organoleptic test were guaranteed (atmospheric, culinary production, plating, serving and tasting, among others) in order to ensure the reliability of each panel member evaluation. In the sensory lab, 4 gastronomic elements catalogued in the SF - Ark of Taste were tested, namely: 'Tarrestre' beans, 'Tarrestre' bean rice, 'Cachena' veal meat and 'Ermelo' orange. Each of these elements was compared with its conventional counterparts and evaluated using a battery of validated attributes (from similar studies published) for each of the 5 sensory dimensions: Touch; Flavour; Smell; Vision and Hearing. The sensorial attributes classification differences were tested through descriptive statistics analysis. Culminating this analysis, all menu elements were conjointly tested between the three professional groups, originating a comparative evaluation between the conventional menu and the 'Ark of taste' menu.

Results: The results reveal differences between comparative samples. Moreover, relevant conclusions about the Vision and Flavour dimensions were noted. The research

conclusions suggest some orientations towards new community strategies to embrace those products and protect them as a way to improve the economic and social impact on low density territories. At the same time, exploring the differences between them could be possible to reinforce the quality of food products, especially the Portuguese ark of taste products

Originality: As far as the authors know, this sensory experience is unprecedented in Portugal. The research aims to contribute to the discussion of how the gastronomy stakeholders, including policy makers, could adjust some strategies to defend and promote products of excellence.

Keywords: *Slow-food; Ark of taste, Gastronomy, Sensory test.*

The effect of sustainable HRM on employees' proactive behavior and organizational citizenship behavior for the environment: A study on the Metal Sector in Portugal

Gabriela Gomes. Faculdade de Economia, CeBER, Universidade de Coimbra.
gabrielapgomes@hotmail.com

Arnaldo Coelho. Faculdade de Economia, CeBER, Universidade de Coimbra.
acoelho@fe.uc.pt

Neuza Ribeiro. Escola Superior de Tecnologia e Gestão, CARME, Politécnico de Leiria.
neuza.ribeiro@ipleiria.pt

Abstract

Purpose: Within the current business landscape, the compelling call for sustainability has driven organizations to reconsider their approaches to human resource management. The purpose of this study is to examine the complex relationship between employees' perceptions of the implementation of Sustainable Human Resource Management (sustainable HRM) practices and their behavioral responses. It particularly examines how employees perceive the implementation of these practices and its impact on two specific aspects of their behavior: Proactive Behavior (PB) and Organizational Citizenship Behavior for the Environment (OCBE).

Methodology: Employing a double source data collection method, this study incorporates perspectives from both managers and employees, analyzing a sample of 294 supervisor-subordinate dyads from three Portuguese multinational companies in the metal sector. Sustainable HRM was measured using twelve items from Yu et al. (2021), based on the studies by Kim et al. (2019) and Dumont et al. (2017). OCBE was measured through six items previously developed and validated by Mi et al. (2019), and PB was measured through seven items proposed and validated by Wu et al. (2018). Sustainable HRM was measured by the employees while OCBE and PB were rated by supervisors. Structural equation modeling is applied to test the proposed hypotheses.

Results: The research reveals that sustainable HRM positively influences OCBE, i.e. integrating sustainability principles and empowering employees, sustainable HRM fosters a positive work environment, encouraging participation in organizational sustainability efforts. However, the study does not identify a significant direct impact of sustainable HRM on PB. This suggests that while recognition of sustainable HRM practices is associated with positive behaviors, factors such as autonomy and the achievement of competencies play an important role. In companies with clear operating rules, where sustainable HRM practices are more directive, workers' autonomy and ownership of roles may be constrained, potentially limiting the impact on PB.

Originality: As sustainability becomes imperative for organizational success, this research aims to fill gaps in the understanding of the nexus between sustainable HRM and employee behaviors. Thus, specifically, this study emphasizes the pivotal role of

sustainable HRM in promoting OCBE, while raising significant inquiries regarding PB, namely in the context of organizational sustainability. These insights contribute to the understanding of how organizations can take advantage of sustainable HRM to enhance employee's engagement to contribute to these more sustainable issues, encourage environmentally responsible behaviors, and cultivate a workplace conducive to employees' well-being.

Keywords: *Organizational citizenship behavior for the environment; Proactive behavior; Sustainable human resource management.*

References

- Dumont, J., Shen, J. & Deng, X. (2017). Effects of Green HRM Practices on Employee Workplace Green Behavior: The Role of Psychological Green Climate and Employee Green Values. *Human Resource Management*, 56(4), 613–627. <https://doi.org/10.1002/hrm.21792>
- Kim, Y. J., Kim, W. G., Choi, H. M. & Phetvaroon, K. (2019). The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. *International Journal of Hospitality Management*, 76, 83–93. <https://doi.org/10.1016/j.ijhm.2018.04.007>
- Mi, L., Gan, X., Xu, T., Long, R., Qiao, L. & Zhu, H. (2019). A new perspective to promote organizational citizenship behaviour for the environment: The role of transformational leadership. *Journal of Cleaner Production*, 239, 118002. <https://doi.org/10.1016/j.jclepro.2019.118002>
- Wu, X., Kwan, H. K., Wu, L. Z., & Ma, J. (2018). The effect of workplace negative gossip on employee proactive behavior in China: The moderating role of traditionality. *Journal of Business Ethics*, 148, 801-815. <https://doi.org/10.1007/s10551-015-3006-5>
- Yu, X., Li, H., Ling, M., He, B., Wen, J. & Xia Jing, W. (2021). Measuring Sustainable Human Resource Management under the new economic era. *E3S Web of Conferences*, 275. <https://doi.org/10.1051/e3sconf/202127503068>

Session – “Sustainability, E-Government, and Market Dynamics”

Chair: Vanda Vereb

The model of sustainable development of territories

Lidia Minchenkova. School of Commercial Engineering, Bernardo O'Higgins University, Santiago, Chile, lidia.minchenkova@ubo.cl

Alexandra Minchenkova. School of Industrial Civil Engineering, Bernardo O'Higgins University, Santiago, Chile, aleksandra.minchenko@ubo.cl

Olga Minchenkova. Plekhanov Russian University of Economics, Moscow, Russia, olumin@mail.ru

Natalia Eloisa Conejero Riquelme. School of Industrial Civil Engineering, Bernardo O'Higgins University, Santiago, Chile, natalia.conejero@ubo.cl

Abstract

Purpose: This study aims to investigate the sustainable development that become a significant trend among economists, government bodies, and organizational leaders.

Methodology: The research employs the analytical approach that involves a review of existing literature and an exploration of different methodologies for modeling sustainable development and index method that was adopted as the approach to determine sustainable development. The calculation proceeded through several stages in MS Excel.

Results: The increasing popularity of this theme is driven by heightened attention to rational natural resource management in the face of continuous population growth, shrinking resource availability for production, increased waste generation, and changes in logistics. These factors necessitate a shift in methods for achieving economic growth. The article analyzes approaches to modeling sustainable development of territories and proposes the author's model that incorporates an innovative subsystem.

Research limitations: The study acknowledges potential limitations and discusses the merits and drawbacks of this model.

Originality: This article contributes to the discourse on sustainable development and proposes the modeling sustainable development of territories and the author's model that incorporates an innovative subsystem.

Keywords: *Sustainable Development, Sustainable Development of Territories, Model of Sustainable Development, Factors of the Sustainable Development Model, Indicators of Sustainable Development.*

1. Introduction

One significant trend in the development of modern socio-economic systems in the 21st century has been the recognition of global issues in the ecological, resource-based, and demographic spheres, as well as issues of social inequality and antagonistic tensions between the demands of consumption and the finite nature of the biosphere. Distortions in classical understandings of the growth of human needs have led to the dominance of materialism and corresponding unchecked consumption of resources, including those that are non-renewable.

An attempt to address these issues has involved defining optimal levels of economic development in relation to the level of biosphere degradation, as well as extremist attempts to optimize the quantity of consumed resources by minimizing anthropogenic pressure on our planet, which is limited in size.

This study is relevant to countries facing resource scarcity as well as those with low levels of innovative activity among the population.

The main innovation in this research was the novelty of the applied innovation indicators, which were previously not used in the information's base, which was unexplored in the scientific research. Purpose of data gathering is to broaden the horizons of research and place your work on the academic literature arena with significance also suggest including some indicators of innovative activity among the analyzed parameters that are the number of patents granted, the quantity of innovators. This research might push forward the political use of its results, such as drafting new indicators including ones that might be put towards use by international organizations such by the United Nations Commission on Environment and Development (UNCED) as well as others in the process of evaluating sustainable development of countries. The newly developed indexes will give an opportunity to update sustainable development indicators; therefore, improving the ratings accuracy as compared to the previous rankings. Firstly, it is advisable to use the research outcome in a teaching country as a blueprint for activating innovation processes in the economic development, which can present

valuable example for the countries that are striving to achieve innovation as a key factor for economic growth.

2. Literature Review

There are many definitions of sustainable development, but we will understand sustainable development of a system as the ability to sustain its existence through internal qualitative changes that ensure adaptation and growth, in other words, it refers to dynamic stability (Bobylov, et al., 2017). When it comes to a socio-economic system, sustainable development is understood as economic growth that ensures fair distribution of goods in society (absence of social unrest), their qualitative and quantitative increase, without deteriorating the resource provision for future generations (absence of environmental disturbances).

Sustainable development characterizes the limits of acceptable changes in the fundamental properties of a system, the dimensionality of entropy, beyond which the integrity of the system is disrupted. Sustainable development represents a balanced interaction of opposites: development and stability, renewal and preservation, diversity, and unity.

The concept of sustainable development is based on principles including prospective, the relativity of dynamics and growth limits, balanced consumption with a fair social standard, and harmonization of constituent elements within socio-economic systems.

When considering sustainable development of territories, we imply that these entities possess the following properties: a resource and production base, autonomy in making economic decisions, and manageability. Territorial systems consist of functional subsystems at lower levels, united by system-forming connections and possibly common goals.

Among them, the following subsystems can be noted: natural, resource, production, infrastructural, demographic, social, recreational, institutional, ecological, and spiritual environments. They interact with each other, and their qualitative and quantitative changes are subordinated to a common goal:

satisfying the material and spiritual needs of the population of the territory while preserving or developing the natural subsystem.

All subsystems are interconnected through human constructive activity. However, the functioning of each subsystem is aimed at meeting the needs of people. It is important to note that the types and methods of meeting the population's needs vary depending on the natural, social, cultural, and economic conditions of the territory. Nevertheless, the behavior of the system—whether it develops, grows, declines, or experiences disturbances—depends on its structure with direct and feedback loops, reducing uncertainty, the presence of a stimulation system, and determining certain human behaviors.

3. Methodology

This study is based on the premise of interdependence between social, ecological, and economic subsystems.

Further modeling is inseparably linked to innovations, creative methods, and the development of human consciousness.

Econometric models based on economic growth have been proposed as a methodology for sustainable development. To achieve indicators of GDP growth (Bobylev & Solovyeva, 2017), the following formula was suggested:

$$Y = C + I + P, (1)$$

where Y— GDP; C — investment in human capital; I — investment in fixed assets in the broad sense of the word; P is an investment in natural restoration. At the same time, the expenditure on natural capital is determined by the sum of the share of the extractive industry in the region's GDP and the damage from the use of natural resources, divided by the efficiency of investment in environmental conservation measures. Regarding investments in human capital, the model considers only the budget expenditures on human capital development without any adjustment coefficients.

D. A. Deneviziuk (Deneviziuk, 2006) developed a model based on cyclical Kondratieff waves. In this model, the stability of the territory is calculated based

on a sine wave, which represents the phases of the economic cycle (its economic, social, environmental component) in a certain period.

When considering the presented models, it's important to note that these models are static and reflexive. To characterize the dynamic stability of development, an integrated indicator is necessary, examined over time to track changes in indicators. It should demonstrate trends toward stability or otherwise. With increased stability, the integrated indicator in the current period should exceed or remain the same as the analogous indicator in the previous period.

L. B. Kalmykova employs an attributive approach in determining the sustainability of territorial development (Kalmykova, 2013). The methodology consists of two stages. At the first stage, the impact of economic activity on the environment and vice versa is assessed. At the second stage, the results of the study are analyzed and interpreted in a dichotomous category — positive or negative impact depending on deviation from the value by 1%.

When assessing the sustainability of territorial development based on econometric models, it is necessary to address the problem of identifying indicators to be used in calculations and methods for obtaining the required information, which often poses a limitation to the study.

Indeed, there are numerous approaches to defining the set of indicators for identifying dependencies, as well as methodologies for their calculation and interpretation. Typically, indicators are grouped into three main categories: economic, social, and environmental. Sometimes, commonalities are highlighted: by driving force, by current state, and by responsiveness indicator. However, it's notable that these indicators do not consider indicators characterizing the self-organization of territorial systems, which is a common oversight.

In the study, we will consider that sustainable development of territories is achieved when the growth rate of the objective function is maintained at a minimum and ideally increases. The question lies in the choice of the objective function; economists often choose GDP growth as it. However, in humanistic economics, where activities are aimed at human development and factors of production include culture, intellectual values, qualifications, and ethical potential,

it is logical to choose the growth of intellectual product production as the objective function.

The index method was adopted as the approach to determine sustainable development. The calculation proceeded through several stages in MS Excel.

The data utilized in this research was obtained from the United Nations Commission on Environment and Development (UNCED).

4. Results

In the first stage, all indicators related to territorial development were unified and standardized by compiling a uniform list.

Also, the indicators were divided into four subgroups (social, economic, environmental and innovation) (see Tab. I), and then divided into 2 groups. The first group includes indicators that have a positive impact on sustainable development, and the second group includes indicators that have a negative impact. The grouping of indicators according to this attribute is presented (see Tab. I).

Table I: The indicators table

N	Set of indicator	Index	Indicator	Unit
1	Economic	1	Gross Regional Product	million CLP
		2	Value of Fixed Assets	million CLP
		3	Degree of Contribution of Fixed Assets	%
		4	Net Financial Result of Organizations	million CLP
		5	Proportion of Loss-Making Enterprises	%
		6	Industrial Production Index	%
		7	Share of High-Tech Products and Services in Gross Regional Product	% year-on-year thousand people
		8	Average Annual Employment	
2	Environmental	1	Emissions of pollutants	thousand tons
		2	Expenditures on environmental protection	million CLP
		3	Freshwater usage	million m3
		4	Volume of recycled and sequentially used water	million m3
		5	Earth Restoration	hectares
		6	Amount of production and consumption waste generated	tons
3	Social	1	Population	Thd.people

		2	Life expectancy at birth	Years
		3	Actual wages and salaries of employees	Thd. CLP
		4	Total area of dwellings per inhabitant	m2
		5	Per capita consumer spending	CLP
		6	Morbidity per 1000 population	People
		7	Number of registered unemployed	People
		8	Migration rate per 10,000 population	Thd. people
4	Innovations	1	Internal expenditures on scientific research and development	million CLP
		2	Investments in modernizing fixed assets	million CLP
		3	Investments in research-based environmental programs	million CLP
		4	Investments in population education	million CLP
		5	Average duration of education	year
		6	Number of registered patents	units.
		7	Number of rationalizers and inventors	People
		8	Volume of innovative goods, works, services	million CLP

Source: Own Elaboration

At the second stage, the indicators are normalized and brought into an index form.

At the third stage, based on the calculated indices for the formed subgroups, a generalized index of sustainable development is determined:

$$Y = \sqrt[4]{Y_e * Y_{ec} * Y_s * Y_{in}} \quad (2)$$

With a growth rate of this indicator, sustainable development of the territory is observed.

The limitation of the study lies in the lack of sufficient data for analysis on indicators that could have been used in the research. However, such a model can be transformed and adapted to any indicators, which is undoubtedly its advantage.

The "1" correspond to positive ore neutral growth of the indicator from the Formula (2), "0" - negative dynamics, what describes that a value of "1" indicates a positive o neutral change in the indicator, while a value of "0" indicates a negative change. It is important to note that conducting such calculations involves

complexities associated with sourcing information across various countries and the diversity of assessment methodologies, which may affect the accuracy and reliability of the results (see Tab. II).

Table II: Matrix of Sustainable Development of Countries for Years of Observation

Country	Year					
	2018	2019	2020	2021	2022	2023
Norway	1	1	1	1	1	1
Germany	1	1	1	1	1	0
United States	1	1	1	1	1	0
Chile	1	1	0	0	0	0
India	0	0	0	0	0	1
China	1	0	0	0	1	1
Russia	1	1	0	0	0	0
Brazil	1	0	0	0	0	1
South Africa	0	0	0	0	0	0

Source: Own Elaboration

5. Discussion

There are many models of sustainable development of territories, for example, the Sustainable Economic Development Assessment (SEDA) model developed by BCG (Kiselakova & Onuferova, 2021) measures the sustainability of economic growth based on an integrated index based on 40 indicators. The indicators are divided into 3 sub-indices: economic (household income, economic stability, employment), investment (level of investment in the following areas: education, health infrastructure), sustainable (income equality, civil society, environment).

European scientists (Senetra et al., 2014) emphasize the priority of the connection between sustainable development and changes in land use structure, determining that a territory develops sustainably if the index of territorial (municipal) development, calculated as the ratio of the percentage change in forest area to the percentage change in urbanized land area, is greater than one.

Publications (Mozas-Moralet al., 2020) link sustainable development with the results of innovative activities, and (Cervello-Royo et al., 2020) condition sustainable development with a favorable business environment that stimulates the activities of large industrial enterprises with an increase in environmental damage, which for the sustainable development of territories must be minimized, again through innovative technologies.

Some researchers highlight green and circular economies (Piyapong, 2017) as directions for implementing the concept of sustainable development, which are associated with resource conservation and recycling. In these concepts, population awareness regarding waste management is considered one of the factors of the model.

6. Conclusion

Based on calculations for territories, it can be concluded that sustainable development is homogeneous but not constant.

As of today, the territorial system can be characterized as unstable because achieving a balance of interests in the subsystems that make up the overall system is very difficult, perhaps even impossible.

Objectively, there always exists a contradiction between global and national interests at the level of individual national economies.

Theoretically, a moment of stable equilibrium of the system is possible. In dynamics, the territorial system is always in a state of approaching or moving away from stable equilibrium when there is equality of ecological and social interests, and the requirements of innovative economy are met.

It is understood that the territorial system cannot be fully classified as self-organizing systems; however, under certain assumptions, it can be regarded as such.

The role of macroeconomic regulation of the dynamic development of all subsystems is significant and is associated with studying the relationships between subsystems, allowing for the identification of patterns in the

development of the entire system. The current trend can be formulated as follows: increasing interdependence within the considered system over time; restoring balance between subsystems considering the ecological factor and environmental needs, increasing the role of qualitative parameters of economic development within the territorial system, and intellectualization of economic activity.

The main challenges of transitioning to sustainable development include increased costs for implementing social programs (social direction); depletion of industrial system reserves (economic direction); undermining sustainable natural systems (environmental direction), and degradation of education (innovation direction).

References

- Bobylev, S. N., Solovyova, S. V. (2017). Sustainable Development Goals for Russia's Future. *Problems of forecasting*, 3: cyberleninka.ru/article/n/tseli-ustoychivogo-razvitiyadlya buduschego-rossii (accessed:30.03.2024).
- Deneviziuk, D. A. (2006). Cyclical model of sustainable development of the territory. *Problems of Modern Economy*, 3/4(19/20). www.m-economy.ru/art.php?nArtId=1119
- Kalmykova, L. B. (2013). Assessment of sustainable socio-economic development of the region using elasticity coefficients. *Economics, Statistics and Informatics*, 3, 34-37.
- Beata S., Kiselakova, D. & Onuferova, E. (2021). An Empirical View on the Determinants of Sustainable Economic Development: Evidence from EU (28) Member States. SHS Web of Conferences, 91, 01008. 10.1051/shsconf/20219101008.
- Cervello-Royo, R., Moya-Clemente, I., Perello-Marin, M. R. & Ribes-Giner, G. (2020). Sustainable development, economic and financial factors, that influence the opportunity-driven entrepreneurship. An approach. *Journal of Business Research*, 115, 393-402. 10.1016/j.jbusres.2019.10.031.
- Mozas-Moral, A., Bernal-Jurado, E., Fernandez-Ucles, D. & Medina-Viruel, M. J. (2020). Innovation as the backbone of sustainable development goals. *Sustainability*, 12(11). 10.3390/su12114747.
- Senetra, A., Szczepańska, A. & Wasilewicz-Pszczółkowska, M. (2014). The correlations between natural and anthropogenic land-use patterns as a measure of sustainable regional development. The 9th International Conference "Environmental Engineering 2014. 10.3846/enviro.2014.132.
- Beata S., Kiselakova, D. & Onuferova, E. (2021). An Empirical View on the Determinants of Sustainable Economic Development: Evidence from EU (28) Member States. SHS Web of Conferences, 91, 01008. Available at: https://www.shsconferences.org/articles/shsconf/pdf/2021/02/shsconf_ies2020_01008.pdf (Date of access: 30.06.2021). 10.1051/shsconf/20219101008.
- Cervello-Royo, R., Moya-Clemente, I., Perello-Marin, M. R. & Ribes-Giner, G. (2020). Sustainable development, economic and financial factors, that influence the

- opportunity-driven entrepreneurship. An approach. *Journal of Business Research*, 115, 393-402. 10.1016/j.jbusres.2019.10.031.
- Denezizjuk, D. A. (2006). A cyclic model of sustainable development of the territory. *Problemy sovremennoy ekonomiki* [Problems of the modern economics], 3/4(19/20). Available at: <https://www.m-economy.ru/art.php?nArtId=1119>
- Kalmykova, L.B. (2013). Assessment of sustainable social and economic development of the region using elasticity coefficients. *Ekonomika, statistika i informatika* [Economics, statistics and informatics], 3, 34-37. (In Russ.)
- Mozas-Moral, A., Bernal-Jurado, E., Fernandez-Ucles, D. & Medina-Viruel, M. J. (2020). Innovation as the backbone of sustainable development goals. *Sustainability*, 12(11). 10.3390/su12114747.
- Senetra, A., Szczepańska, A. & Wasilewicz-Pszczółkowska, M. (2014). The correlations between natural and anthropogenic land-use patterns as a measure of sustainable regional development. The 9th International Conference "Environmental Engineering 2014". Available at: http://enviro2014.vgtu.lt/Articles/3/132_Senetra.pdf (Date of access: 30.03.2024). DOI: 10.3846/enviro.2014.132.

Does social capital remove tourism barrier for people with disabilities? Evidence from Italy

Marchesano Katia. University of Naples “Parthenope”, Department of Department of Economic, Legal, Computer and Sports Sciences, Italy. E-mail: katia.marchesano@uniparthenope.it

Massimiliano Agovino. University of Naples “Parthenope”, Department of Department of Economic, Legal, Computer and Sports Sciences, Italy. E-mail: Massimiliano.agovino@uniparthenope.it

Abstract

Purpose: The tourism market is made up of a heterogeneous set of consumers with different needs and preferences. As suggested by the UNWTO, accessibility to tourism, i.e. the possibility of travel mobility for all, regardless of physical, social and economic conditions, should be a central part of any responsible and sustainable tourism policy. The UNWTO Global Code of Ethics for Tourism emphasizes, in Article 7, that all people should be able to exercise their right to enjoy tourism without barriers.

However, tourism participation opportunities for consumers with disabilities depend crucially on the existence of tourism goods and services that meet their needs in a tourism destination (Cole et al., 2019; Freund et al., 2019). The lack of these commodities raises barriers to tourism participation (i.e., environmental, economic and informational barriers) by inducing a self-selection problem (Michopoulou et al., 2016; Gillovic and McIntosh, 2015; Agovino et al., 2017). This latter may generate a biased measure of their probability to participate in tourism.

Starting from this consideration, the aim of the study is the work analyzes the problem of self-selection linked to tourism barriers for people with disabilities and analyzes the role of social capital in reducing them. The networks of social capital, via the diffusion of information and knowledge on the needs of PD, may be an essential tool in breaking down tourism barriers.

Methodology: To verify and address these issues, a Heckman selection model is implemented and data from the national sample survey on ‘The social inclusion of people with functional limitations’ carried out by the Italian National Statistical Institute (ISTAT) in 2011 is employed. This survey was planned by a partnership between ISTAT and the Ministry of Labour and Social Policies as part of a project (Statistical Information System on Disability) to obtain information on the level of social integration of PD in the school, work, and social life in general. Unfortunately, it was never repeated again during the years. The questionnaire was submitted to a sub-sample of 3,121 individuals aged between 11 and 87, representing a population of 3,947,000 individuals of the same age group. Our sample consists of 2,974 individuals.

From a methodological point of view, in order to test the probability of a person with disability to participate in tourism, while taking into account the self-selection problem and by testing it, the Heckman approach estimates two equations simultaneously: a selection equation (‘tourism barriers equation’) and an observation equation (‘tourism participation equation’).

In addition, by considering the variables relating to social capital among the regressors of tourism barriers equation, we also test their effect on barriers to tourism.

Results: The results show the importance of social capital, via bridging and linking networks, in reducing the barriers to tourism participation.

Research limitations: A limitation of our work is represented by the data, which are very old and should be updated based on the changes that have occurred in society from 2011 onwards.

Originality: To the best of our knowledge, no previous study has analysed the self-selection problem that is related to various barriers for people with different disabilities while investigating the role of social capital in the accessible tourism sector. In particular, previous studies in Italy have primarily focused on analysing the state of implementation of accessible tourism and the characteristics of potential demand as well as the type of barriers encountered (Agovino et al., 2017; Migliaccio, 2019; Cavapozzi and Zantomio, 2020; Maffi and Fagni, 2023). Other studies, furthermore, have highlighted the positive effects of local public expenditure for PD on the tourism flows in Italy (D'Arrigo et al. 2022).

Keywords: *accessible tourism; social capital; disability; tourism barriers; Heckman selection model; Italy*

References

- World Health Organization (2011) World report on disability 2011. Malta: World Health Organization.
- World Tourism Organization (2016) Manual on Accessible Tourism for All: Principles, Tools and Best Practices – Module I: Accessible Tourism – Definition and Context, UNWTO, Madrid.
- Michopoulou, E., Darcy, S., Ambrose, I., Buhalis, D. (2016), Accessible tourism futures: the world we dream to live in and the opportunities we hope to have, *Journal of Tourism Futures*, Vol.1(3), 179 – 188.
- Gillovic, B., McIntosh, A. (2015). Stakeholder perspectives of the future of accessible tourism in New Zealand. *Journal of Tourism Futures*, 1(3), 223-239.
- Agovino, M., Casaccia, M., Garofalo, A., Marchesano, K. (2017) Tourism and disability in Italy. Limits and opportunities, *Tourism Management Perspectives*, 23, 58-67.
- Migliaccio G. (2019) Tourism for people with disabilities in Italy: an overview, *African Journal of Hospitality, Tourism and Leisure*, 8 (5).
- Cavapozzi D. and Zantomio F. (2020) Senior Tourism in Italy: the Role of Disability and Socio-economic Characteristics, *Journal of Population Ageing*, 14:229–245
- D'Arrigo, S., Limosani, M., Millemaci, E., Monteforte, F., Sciulli, D. (2022). Tourism Flows in Italy: The Role of Local Public Policies Toward Disability. In: Abbate, T., Cesaroni, F., D'Amico, A. (eds) *Tourism and Disability. Tourism on the Verge*. Springer, Cham. https://doi.org/10.1007/978-3-030-93612-9_4

The Importance of Sustainable Marketing Mix in the Activities of Polish Food Companies

Paweł Tadeusz KAZIBUDZKI. Faculty of Economics and Management, Opole University of Technology, Poland. E-mail: p.kazibudzki@po.edu.pl

Tomasz Witold TROJANOWSKI. Faculty of Social Sciences, Academy in Piotrków Trybunalski, Poland. E-mail: tomektrojanowski@poczta.fm

Abstract

Purpose: The purpose of the study is to highlight a rather important problem concerning the implementation of business ventures by Polish food companies using sustainable marketing instruments.

Methodology: To investigate respondents' perceptions regarding particular aspects of the evolution of the sustainable marketing, especially its development intensity within the examined domains, the Development Ratio (dR) was selected as a metric. This metric indicates the sustainability level of the marketing mix within the assessed domains, determined through an interview technique where each question was rated on a seven-point Likert scale. The methodology selection was grounded on the applicability of well-defined gradient method.

Results: The study conducted a comprehensive investigation into the sustainable marketing for the Polish case of food sector on the example of fruit and vegetable industry, emphasizing the environmental and social aspects of production, pricing, distribution, and promotional activities. The research results offer valuable insights into the sustainable marketing practices within Poland's fruit and vegetable industry, identifying areas of strength as well as opportunities for improvement. The results expose a complex landscape of sustainability practices within the industry. While there is a commendable level of awareness and progress in areas such as employee-focused social aspects, other domains, particularly consumer-focused social aspects and sustainable promotional activities, are significantly lacking.

Research limitations: The research, despite its thoroughness, is not without limitations. It concentrated on a specific sector within the Polish economy, potentially restricting the generalizability of its findings to other industries or countries. Although the sample size is adequate for the study's scope, it represents only a fraction of the industry. Larger studies might produce more broadly applicable results.

Originality: The originality of the study lies in the presentation of a creative concept of sustainable marketing in relation to manufacturing companies in the food sector, responsible for significant impacts on the state of the environment and the quality of life of societies.

Keywords: Sustainable marketing; Food industry; Marketing mix; Fruit and vegetable companies; Development Ratio.

1. Introduction

The observed development of the modern world in the economic, economic and technical-technological areas, in addition to improving the quality of life of people, also carries serious risks associated with negative impacts on the state of the environment and society. The progressive development of societies is a desirable and natural phenomenon that cannot be stopped, but at the same time it is necessary to remember to respect the environment and care for the well-being of societies. Manufacturing and service companies operating in various industries are increasingly striving to improve their financial efficiency by expanding their market share and gaining more and more customers, often forgetting about environmental and social factors. The various types of marketing and promotional activities used by companies are aimed at attracting buyers who are willing to purchase a product or service. Among these enterprises are food producers. The aforementioned marketing and promotional activities undertaken by various producers, including those in the food sector, often focus solely on financial aspects, ignoring environmental and social aspects. The use of marketing in the broadest sense to achieve economic benefits is an outdated way to achieve the set goals. Today, it is increasingly possible to identify organizations that are oriented towards sustainable marketing activities that take into account the triad of objectives: economic, environmental and social. This means that, one goal must not be pursued at the expense of the other. In the literature, this concept is referred to as the Triple Bottom Line (TBL). (Elkington, 2013; Glavas & Mish, 2015; Muñoz-Pascual et al., 2019; Shou et. al, 2019; Trojanowski, 2022). A sustainable enterprise should pursue a total of three goals, which is not an easy task facing managers responsible for producing, distributing and selling products or services. A helpful tool in addressing emerging issues is sustainable marketing, which is designed to simultaneously ensure a company's financial success while taking into account environmental and social aspects.

2. Literature Review

As a result of recognizing the state of the art in sustainable marketing, it should be concluded that it is a new and developing scientific area that requires further theoretical as well as empirical analysis. Sustainable marketing being a sub-area of sustainable management aims to achieve not only economic, but also environmental and social goals. (Kemper et al., 2019). A review of the literature in the area of sustainable marketing mix indicates a rather poor state of publications devoted to this concept. Among the main authors dealing with this topic are Belz & Peattie, 2010; Martin & Schouten, 2012; Fuller, 1999; Emery, 2012; Kadirov, 2008; Leitner, 2012; Kazibudzki & Trojanowski, 2020; Trojanowski & Kazibudzki, 2021; Kazibudzki & Trojanowski, 2024). However, over the past ten years, one can notice an increased interest among scholars and researchers in the concept of sustainable marketing (Pomering & Johnson, 2018; Rudawska, 2018). In the available publications, the authors have presented a fairly extensive knowledge of marketing and the various instruments of the marketing mix in relation to the concept of sustainability. Reviewing the literature, it should be noted that the scientific output in the field of sustainable marketing is rather modest. This is not due to researchers' disregard for the concept. This is an important subject area due to the fact that the activities of manufacturing companies, including those in the food industry, have a significant impact on the condition of the environment and the state of life of societies.

3. Methodology and Results

Methodologically, the research involved a sample of 216 companies, employing a comprehensive survey to assess various dimensions of the sustainable marketing mix, including the environmental and social aspects of production, pricing, distribution, and promotional activities. The template for the questionnaire is included in this research as Appendix A. The questionnaire comprised a total of 40 questions divided into 8 sections. The questions were based on previously published surveys that were successfully applied in similar research studies

(Kazibudzki & Trojanowski, 2020; Trojanowski & Kazibudzki, 2021). The focus was on eight fundamental aspects of the sustainable marketing mix concept i.e.:

- ☐ Participants' awareness of the sustainable development concept – denoted as a domain $D(1)$.
- ☐ The environmental aspects of the production activities of the surveyed enterprises – denoted as a domain $D(2)$.
- ☐ The social aspects of production activities from the consumers' perspective – denoted as a domain $D(3)$.
- ☐ The social aspects of production activities from the employees' perspective – denoted as a domain $D(4)$.
- ☐ The incorporation of social and environmental costs in the pricing of sustainable fruit and vegetable products – denoted as a domain $D(5)$.
- ☐ The evaluation of the sustainable distribution activities of the examined enterprises – denoted as a domain $D(6)$.
- ☐ The examination of promotional activities in relation to the sustainable development concept – denoted as a domain $D(7)$.
- ☐ The exploration of development perspectives for the sustainable marketing mix of fruit and vegetable products – denoted as a domain $D(8)$.

To achieve the survey's goal of probing respondents' perceptions concerning specific aspects of sustainable marketing mix evolution, particularly its development intensity in the studied areas, the Development Ratio (dR) was selected as a measure. This choice was based on deviations from a standard value, specifically employing the gradient method. Since this measure, under various names, has been thoroughly explained and successfully applied in many similar articles (Kazibudzki & Trojanowski, 2020; Trojanowski, 2022; Trojanowski & Kazibudzki, 2021), a detailed discussion of it will be omitted for brevity. However, this ratio indicates the sustainability level of the marketing mix in the evaluated domains, determined through interviews where each question was rated on a seven-point Likert scale. Baseline ratios for all evaluated domains covered by the sustainable marketing mix questions were calculated based on participant responses. Each question within a domain was considered equally significant, thus the average values have been applied to obtain the development ration for a particular domain. Respectively, each domain has been considered equally important in the calculation of the total development index which has been computed as the arithmetic mean of all values for domains. The effect of these

calculations is presented in a table (Table 1). The table presents the outputs of all mean values of development ratios (dR_i) for specific questions, denoted as $Mn(dR_{Q_n})$. It also includes the mean values of $Mn(dR_{Q_n})$ for the studied domains, denoted as $Mn_{Mn(dR_{Q_n})}^{SimF}$ for simple fractions and $Mn_{Mn(dR_{Q_n})}^{DecF}$ for decimal fractions.

Table 1: The examination's outcome summary

D_i	Q_n	$Mn(dR_{Q_n})$	$Mn_{Mn(dR_{Q_n})}^{SimF}$	$Mn_{Mn(dR_{Q_n})}^{DecF}$	$S(D_i)$	$W_{S(D_i)}$	$W_{S(D_i)} Mn_{Mn(dR_{Q_n})}^{SimF}$
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[4]x[7]
D_1	Q_1	0.843	618/869	0.711	$\equiv$	$\equiv$	$\equiv$
	Q_2	0.721					
	Q_3	0.569					
D_2	Q_1	0.544	453/865	0.524	1	1/7	30/401
	Q_2	0.687					
	Q_3	0.735					
	Q_4	0.594					
	Q_5	0.215					
	Q_6	0.565					
	Q_7	0.326					
D_3	Q_1	0.305	29/118	0.246	1	1/7	31/883
	Q_2	0.187					
D_4	Q_1	0.737	129/175	0.737	1	1/7	2/19
	Q_2	0.843					
	Q_3	0.631					
D_5	Q_1	0.917	199/425	0.468	1	1/7	20/299
	Q_2	0.816					
	Q_3	0.630					
	Q_4	0.209					
	Q_5	0.187					
	Q_6	0.052					
D_6	Q_1	0.191	472/875	0.539	1	1/7	43/558
	Q_2	0.424					
	Q_3	0.423					
	Q_4	0.814					
	Q_5	0.832					
	Q_6	0.762					
	Q_7	0.650					
	Q_8	0.724					
	Q_9	0.476					
	Q_{10}	0.099					
D_7	Q_1	0.645	211/720	0.293	1	1/7	35/836
	Q_2	0.232					
	Q_3	0.203					
	Q_4	0.167					
	Q_5	0.218					
D_8	Q_1	0.629	307/864	0.355	1	1/7	10/197
	Q_2	0.139					

Q_3	0.265
Q_4	0.388

$$\sum_{i=2}^{i=8} S(D_i) = 7 \quad \sum_{i=2}^{i=8} W_{S(D_i)} = 1 \quad TDR = 0.452$$

Source: Own Elaboration

Additionally, Table 1 provides equal shares $S(D_i)$ for the studied domains, normalized shares used as weights in the research process, denoted as $W_{S(D_i)}$, weighted mean values of $Mn(dR_{Q_n})$ denoted as $W_{S(D_i)}Mn_{Mn(dR_{Q_n})}^{SimF}$ and the Total Development Ratio (TDR) for all domains of the sustainable marketing mix which equals: $TDR = 0.452$.

4. Discussion

The market for food products is a very dynamic market that is subject to constant trends, fashions, as well as turbulence. One such phenomenon is the need, and even the necessity, observed today to create marketing programs that have the least negative impact on the environment and societies. The ongoing changes in the economic environment of manufacturing and service companies require a more pro-environmental and pro-social approach to the issue of business activities of companies (de Koeijer et al., 2017). The pressures exerted on companies by the social and environmental environment are forcing organizations to change their business objectives, including marketing instruments, so that they are oriented toward sustainable programs that support sustainability (García-Arca et al., 2017; Solér, 2012). The modifications made should include not only the set of marketing mix instruments, but also other areas of marketing such as, for example, segmentation and selection of target markets, integrated marketing communications, and building relationships with environmentally and socially sensitive customers. As a result of the empirical study, it can be concluded that the coefficient of development of a sustainable marketing mix in the studied organizations is 0.452. This means that the marketing mix activities undertaken in the analyzed enterprises are applied

selectively and not to the full extent. This state of affairs calls for further improvement of enterprises in balancing economic, environmental and social goals.

5. Conclusion

The article deals with the conduct of food industry enterprises in the implementation of sustainable marketing mix activities. The research study conducted, which includes both theoretical and empirical aspects, does not fully exhaust the subject matter addressed. The authors have attempted to determine the degree of development of a particular object, which does not fully exhaust the problem of creating sustainable marketing mix programs in food industry enterprises. Therefore, there is a need for further research, both theoretical and empirical, in the analyzed area. Future research should be characterized by intensity and depth in both qualitative and quantitative layers. This article can support manufacturing and service companies, not only those operating in the food sector, but can also prove helpful to organizations operating in other sectors of the economy wishing to take steps to create a sustainable marketing mix.

References

- Elkington, J. (2013). Enter the triple bottom line. In A. Henriques, & J. Richardson (Eds.), *The Triple Bottom Line: Does It All Add Up* (pp.23–38). Routledge.
- Glavas, A., & Mish, J. (2015). Resources and Capabilities of Triple Bottom Line Firms: Going Over Old or Breaking New Ground?. *Journal Business Ethics*, 27, 623–642.
- Muñoz-Pascual, L., Curado, C., & Galende, J. (2019). The Triple Bottom Line on Sustainable Product Innovation Performance in SMEs: A Mixed Methods Approach. *Sustainability*, 11, 1689.
- Shou, Y., Shao, J., Lai, K., Kang, M., & Park, Y. W. (2019). The impact of sustainability and operations orientations on sustainable supply management and the triple bottom line. *Journal Cleaner Production*, 240, 118280.
- Trojanowski, T. (2022). The Triple Bottom Line Concept in Sustainable Marketing Mix Activities of Food Industry Enterprises. *Wseas Transactions on Business and Economics*, 19, 1296-1302.
- Kemper, J. A., Hall, C. M., Ballantine, P. W. (2019). Marketing and Sustainability. Business as Usual or Changing Worldviews? *Sustainability*, 11(3), 780.
- Belz, F. M., & Peattie, K. (2010). *Sustainability Marketing a Global Perspective*. John Wiley and Sons.
- Martin, D., Schouten, J. (2012). *Sustainable Marketing*. Prentice Hall.
- Fuller, D. A. (1999). *Sustainable Marketing: Managerial-Ecological Issues*. SAGE.

- Emery, B. (2012). *Sustainable Marketing; Always Learning*. Pearson..
- Kadirov, D. (2008). *Sustainability of Marketing Systems: Systeming Interpretation of Hybrid Car Manufacturer and Consumer Communications*. Hamilton.
- Leitner, K.E. (2012). *Balanced Sustainability Marketing How a Fish Processor Deals with the Shortage of a Natural Resource*. Südwestdeutscher Verlag für Hochschulschriften.
- Kazibudzki, P. T., Trojanowski, T. W. (2020). Examination of Marketing Mix Performance in Relation to Sustainable Development of the Poland's Confectionery Industry. *PLoS ONE*, 15(10): e0240893
- Trojanowski, T. W., & Kazibudzki, P.T. (2021). Prospects and Constraints of Sustainable Marketing Mix Development for Poland's High-Energy Consumer Goods. *Energies*, 14(24), 8437.
- Kazibudzki, P.T., & Trojanowski T.W. (2024). Quantitative Evaluation of Sustainable Marketing Effectiveness: A Polish Case Study, *Sustainability*, 16(9), 3877.
- Pomeroy, A., Johnson, L.W. (2018). Building Sustainability into Services Marketing: Expanding Decision-Making from a Mix to a Matrix. *Sustainability*, 10, 2992.
- Rudawska, E. (2018). The Sustainable Marketing Concept in European SMEs Insights from the Food and Drink Industry. Available online: <https://www.emerald.com/insight/publication/doi/10.1108/9781787540385>
- De Koeijer, B., de Lange, J., Wever, R. (2017). Desired, perceived, and achieved sustainability: trade-offs in strategic and operational packaging development. *Sustainability*, 9(10), 1923.
- García-Arca, J., Garrido, A., Prado-Prado, J. (2017). Sustainable Packaging Logistics. The link between sustainability and competitiveness in supply chains. *Sustainability*, 9(7), 1098.
- Solér, C. (2012). Conceptualizing sustainably produced food for promotional purposes: a sustainable marketing approach. *Sustainability*, 4(3), 294–340.

Appendix A – The questionnaire's template

D_i	Q_i	Questions	Responses codes
D_1	Q_1	I am sensitive to social problems associated with deterioration of natural environment.	1, 2, 3, 4, 5, 6, 7
	Q_2	I know the concept of sustainable marketing mix development.	1, 2, 3, 4, 5, 6, 7
	Q_3	I have professional experience in pro ecological and pro social areas.	1, 2, 3, 4, 5, 6, 7
D_2	Q_1	The company designs products taking into account their impact on the state of the environment.	1, 2, 3, 4, 5, 6, 7
	Q_2	The company consciously saves energy, water and fuels needed for production.	1, 2, 3, 4, 5, 6, 7
	Q_3	The company eliminates or limits the emission of harmful gases, dusts, fragrances, industrial wastewater, and production waste.	1, 2, 3, 4, 5, 6, 7
	Q_4	The company uses renewable sources.	1, 2, 3, 4, 5, 6, 7
	Q_5	The company consciously eliminates or limits the types and quantities of materials used to make packaging, e.g. film, paper, plastic, aluminum, etc.	1, 2, 3, 4, 5, 6, 7

	Q_6	The enterprise uses packaging made from raw materials wholly or partly recycled.	1, 2, 3, 4, 5, 6, 7
	Q_7	The company makes modifications to create ecological packaging.	1, 2, 3, 4, 5, 6, 7
D_3	Q_1	The company designs products taking into account their impact on consumer health.	1, 2, 3, 4, 5, 6, 7
	Q_2	The enterprise knowingly eliminates or limits the content of such raw materials as white sugar, chemical preservatives, flavor enhancers, artificial colors, trans fats.	1, 2, 3, 4, 5, 6, 7
D_4	Q_1	The company effectively manages human capital while respecting employee rights.	1, 2, 3, 4, 5, 6, 7
	Q_2	The company provides its employees with safe and healthy working conditions.	1, 2, 3, 4, 5, 6, 7
	Q_3	The company ensures fair remuneration.	1, 2, 3, 4, 5, 6, 7
D_5	Q_1	The enterprise includes in the prices of products the costs of purchasing raw materials, energy and materials for production.	1, 2, 3, 4, 5, 6, 7
	Q_2	The enterprise includes transport and storage costs in product prices.	1, 2, 3, 4, 5, 6, 7
	Q_3	The enterprise includes employee costs in product prices e.g. ensuring health and safety, social security.	1, 2, 3, 4, 5, 6, 7
	Q_4	The enterprise includes in the prices of products the costs associated with the elimination or reduction of harmful gases, dusts, fragrances, industrial wastewater and production waste.	1, 2, 3, 4, 5, 6, 7
	Q_5	The company includes in the prices of products the costs of recycling packaging from consumed food products.	1, 2, 3, 4, 5, 6, 7
	Q_6	The company includes in the prices of products the costs of treatment related to the consumption of food products.	1, 2, 3, 4, 5, 6, 7
D_6	Q_1	The company uses environmentally friendly means of transport e.g. hybrid and electric, and LPG fueled cars.	1, 2, 3, 4, 5, 6, 7
	Q_2	The company uses environmentally friendly resources and devices.	1, 2, 3, 4, 5, 6, 7
	Q_3	The company is withdrawing transport with high emissions and noise.	1, 2, 3, 4, 5, 6, 7
	Q_4	The company optimizes the delivery of products by choosing the right routes (shorter, faster routes).	1, 2, 3, 4, 5, 6, 7
	Q_5	The company combines deliveries to several recipients simultaneously.	1, 2, 3, 4, 5, 6, 7
	Q_6	The company adjusts the means of transport to the amount of transported goods.	1, 2, 3, 4, 5, 6, 7
	Q_7	The company makes the most of transport space by properly arranging products in means of transport.	1, 2, 3, 4, 5, 6, 7
	Q_8	The company monitors and controls the working time of drivers to avoid road accidents.	1, 2, 3, 4, 5, 6, 7
	Q_9	The company optimizes distribution channels by reducing intermediaries involved in distribution processes.	1, 2, 3, 4, 5, 6, 7
	Q_{10}	The company selects intermediaries in terms of ecological and social sensitivity.	1, 2, 3, 4, 5, 6, 7

D₇	<i>Q₁</i>	The content of promotional messages is characterized by transparency and credibility.	1, 2, 3, 4, 5, 6, 7
	<i>Q₂</i>	The content of promotional messages is educational.	1, 2, 3, 4, 5, 6, 7
	<i>Q₃</i>	The content of promotional messages emphasize the pro ecological and pro social features of the products.	1, 2, 3, 4, 5, 6, 7
	<i>Q₄</i>	The content of promotional messages inform consumers about the company's ecological and social activity.	1, 2, 3, 4, 5, 6, 7
	<i>Q₅</i>	The content of promotional messages encourages the purchase of pro ecological and pro social products manufactured by the company.	1, 2, 3, 4, 5, 6, 7
D₈	<i>Q₁</i>	The company intends to abandon or limit the production of products which have a negative impact on the environment and consumers health.	1, 2, 3, 4, 5, 6, 7
	<i>Q₂</i>	The company intends to include in its product prices the real environmental and social costs associated with the its products production.	1, 2, 3, 4, 5, 6, 7
	<i>Q₃</i>	The company intends to reduce the negative impact of the its products distribution to society and natural environment.	1, 2, 3, 4, 5, 6, 7
	<i>Q₄</i>	The company intends to use balanced media, forms of communication, and the content of promotional messages.	1, 2, 3, 4, 5, 6, 7
Responses options with codes: (1)-definitely no, (2)-no, (3)-rather no, (4)-neither no; nor yes, (5)-rather yes, (6)-yes, (7)-definitely yes			

The Impact Of E-Government Attributes, E-Government Trust, and E-Government Satisfaction on The Adoption Of E-Government Services In Ho Chi Minh City, Vietnam

Trang Thi Uyen Nguyen. PhD student at Center For Public Administration, International University, Vietnam National University-Ho Chi Minh City, Vietnam. uyentrang263@gmail.com

Nhat Phuc Minh Nguyen. Bachelor Student at International University, Vietnam National University-HCMC, Vietnam. BABAIU20105@student.hcmiu.edu.vn

Linh Doan Phuong Nguyen. Bachelor Student at International University, Vietnam National University-HCMC, Vietnam. BABAIU20066@student.hcmiu.edu.vn

Phuong Van Nguyen. Lecturer at Center For Public Administration, International University, Vietnam National University-Ho Chi Minh City, Vietnam. nvphuong@hcmiu.edu.vn

Hien Thi Ngoc Huynh. Lecturer at International University, Vietnam National University-HCMC, Vietnam. htnhien@hcmiu.edu.vn

Abstract

Purpose: This article presents practical research aimed at understanding the relationship between factors influencing e-government trust, satisfaction, and adoption.

Methodology: A cross-sectional field survey was conducted in Ho Chi Minh City (HCMC), Vietnam, encompassing one small city and twenty-two districts. The survey involved 609 respondents, and statistical descriptive analysis was performed using SmartPLS4 to assess measurement and structural models.

Results: The findings indicate that positive perceptions of the E-government's attributes are linked to higher levels of trust, satisfaction, and utilization of e-government services. However, there is no significant association observed between public satisfaction and the adoption of e-government among Vietnamese citizens residing in Ho Chi Minh City (HCMC).

Originality: These findings are significant given the slow development of the e-government research field in HCMC and Vietnam due to limited relevant studies. These provide valuable insights for government organizations to enhance e-government services and promote greater adoption in the region.

Keywords: *E-government Adoption, E-government Trust, E-government Satisfaction, E-government Attributes, Vietnam*

1. Introduction

Alongside the inevitable trend of technological advancement, governments have digitised public services, in other words, developed e-government to address issues related to the existing managerial system before introducing new services to ensure societal satisfaction (Giao, 2020). By 2018, the number of countries achieving a "Very high" level of e-government development index (EGDI) had increased to 40, compared to only 10 countries in 2003 (Nguyen et al., 2020). Vietnam has actively promoted the development of its e-government system, with its EGDI steadily increasing from 0.47 in 2014 to 0.59 in 2018. This improvement elevated Vietnam's ranking from 99th in 2014 to 88th out of 193 countries in 2018, placing it sixth among eleven ASEAN countries.

Despite the overall progress, Vietnam's development in e-government has been relatively slow compared to other ASEAN countries. While there are numerous online public services available, their utilization remains restricted. Vietnam's challenge lies in increasing citizen engagement and familiarity with the new e-government system. To tackle this, the government needs a comprehensive understanding of the factors that influence citizens' intention to adopt e-government. This study aims to examine whether citizens' trust and satisfaction with E-government, the two fundamental elements of every service, impact their intention to adopt this e-service. Drawing upon the good governance theory, the study proposes the following research questions:

RQ1: Can e-government attributes (perceived accountability, security, transparency, and responsiveness) influence e-government trust and satisfaction in Ho Chi Minh City (HCMC)?

RQ2: Do e-government attributes influence citizens' intention to adopt e-government?

RQ3: Is e-government adoption affected by e-government trust and satisfaction?

2. Literature Review

2.1 Good Governance Theory and E-government Attributes

Good governance theory promotes accountable, transparent decision-making in government and organizations, emphasizing citizen participation, the rule of law, and responsiveness (Van Doeveren, 2011). These principles are essential for building public trust (Six et al., 2023), and governments should prioritize their implementation. This study explores the impact of accountability, transparency, and responsiveness on citizens' trust—a key aspect of good governance. Additionally, this study aims to consider security as an attribute of E-government. Perceived security, an attribute integrated into the Technology Acceptance Model (TAM), is crucial in online activities. Studies have shown that perceived security significantly influences online behaviours in other fields, including mobile shopping and digital transactions (Aprilia & Amalia, 2023; Chawla & Joshi, 2019; Matemba & Li, 2018; Sarkar et al., 2020).

2.2 Hypotheses Development

The article introduces four criteria for assessing the quality of e-government services: openness, accountability, answerability, and security. E-government service attributes focus on an organization's ability to meet customer requirements through online platforms, going beyond just providing digital products or information and aiming to create a satisfying user experience (Alblooshi et al., 2023). Excellent e-government services have the potential to enhance user experience, optimize the efficiency of online interactions, and build trust in the system as a whole (Aljukhadar et al., 2022; Li & Shang, 2020).

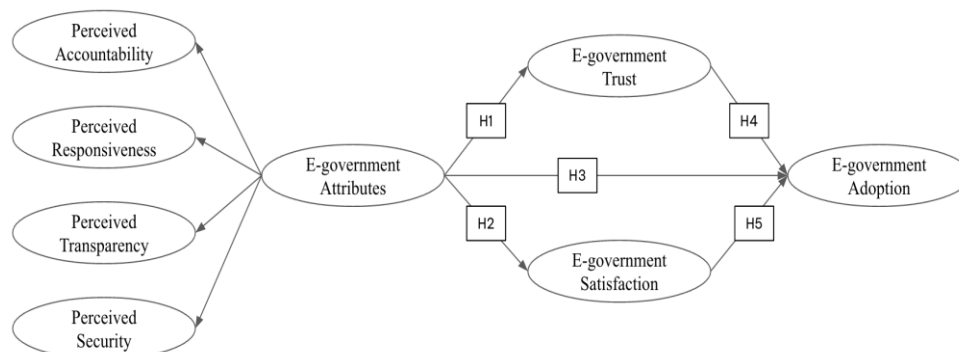
Studies have found a significant relationship between e-service quality and public trust, emphasizing the important role of effective digital service management in cultivating consumer trust (Obaid & Ahmadb, 2022; Setiawan & Septiani, 2018). Accountability, transparency, responsiveness, and security have been identified as factors that significantly impact public trust in e-government services (Beshi & Kaur, 2020; da Cruz et al., 2016; Hartanto et al., 2021; Newcomer, 2020; Porumbescu et al., 2021; Yang & Northcott, 2019). In an era dominated by online engagement, understanding the relationship between e-service quality and public trust is crucial (Abdulkareem & Mohd Ramli, 2022). Additionally, e-service quality has

significant implications for user satisfaction (Thoms et al., 2002; Welch et al., 2004). Users who experience high-quality electronic services and trust the platform tend to exhibit high levels of satisfaction. Noori's findings (2022) suggest that e-service attributes and trust have partial and simultaneous effects on customer satisfaction.

The study aims to examine the relationships among e-government attributes, trust, satisfaction, and adoption, as these constructs are crucial in evaluating the effectiveness of e-government initiatives (Bélanger & Carter, 2008; Fogg et al., 2003; Hariguna et al., 2017; Hariguna & Berlilana, 2017). Electronic services provide digital alternatives to traditional services and create new opportunities by increasing accessibility, reaching broader geographical regions, and enhancing service availability (Hariguna et al., 2021). Consequently, when governments develop and improve factors that shape e-government services, it may influence their citizens' intention to use e-government. Based on these arguments, the article proposes the following hypotheses:

- H1.** E-government Attributes are positively related to E-government Trust
- H2.** E-government Attributes are positively related to E-government Satisfaction
- H3.** E-government attributes positively affect E-government adoption
- H4.** E-government trust positively affects E-government adoption
- H5.** E-government satisfaction positively affects E-government adoption

Figure 1. Proposed Research Model



Source: Own Elaboration

3. Methodology

Due to the lack of a sampling frame, the researchers utilized a non-probability sampling method called convenience sampling, which involves selecting easily accessible participants within a specific geographic area, medical records database, online platform, or customer membership list. Employing the online survey as the primary method, the research was conducted in Ho Chi Minh City, one of the largest cities in Vietnam, to enhance the study's reliability. Specifically, the survey distributed questionnaires to 609 citizens aged 18 and above who had been residing and working (or studying) in Ho Chi Minh City for an extended period.

4. Results

4.1 Assessment of Reliability and Validity

Table 1: Assessment of the Measurement Model

Constructs		Indicators	Loadings	α	CR	AVE
E-government Attribute (AT)	Perceived Accountability (PA)	PA1	0,838	0,973	0,975	0,672
		PA2	0,814			
		PA3	0,843			
		PA4	0,877			
	Perceived Security (PS)	PS1	0,616			
		PS2	0,864			
		PS3	0,815			
		PS4	0,826			
		PS5	0,810			
		PS6	0,831			
	Perceived Transparency (PT)	PT1	0,837			
		PT2	0,776			
		PT3	0,795			

	PT4	0,810			
	PR1	0,774			
	PR2	0,806			
Perceived Responsiveness (PR)	PR3	0,863			
	PR4	0,885			
	PR5	0,859			
	EGT1	0,915	0,935	0,951	0,794
	EGT2	0,869			
E-government Trust (EGT)	EGT3	0,918			
	EGT4	0,856			
	EGT5	0,896			
	EGS1	0,932	0,920	0,949	0,862
E-government Satisfaction (EGS)	EGS2	0,944			
	EGS3	0,909			
	EGA1	0,943	0,933	0,957	0,882
E-government Adoption (EGA)	EGA2	0,927			
	EGA3	0,947			

Condition for validity: Outer loadings > 0.5; α > 0.6; Composite reliability (CR) > 0.7; AVE > 0.5
Source: Own Elaboration

4.2 Results of the Structural Model

Confirming discriminant validity in PLS-SEM is often indicated when the HTMT ratio is less than 1, as stated by (Henseler et al., 2016)

Table II: Heterotrait–Monotrait ratio (HTMT)

Variable	HTMT
AT -> EGA	0.815

EGS -> EGA	0.745
EGT -> EGA	0.770

Source: Own Elaboration

4.3 Hypothesis Testing

Based on the following table, H1, H2, H3, and H4 are supported since their p-values are less than 0.05, while H5 is rejected as the p-value > 0.05.

Table III: Total direct effects

Hypotheses	O	M	STDEV	T statistics	P values	Result
H1. AT -> EGT	0,874	0,874	0,014	62,660	0,000	Accepted
H2. AT -> EGS	0,840	0,839	0,016	52,653	0,000	Accepted
H3. AT -> EGA	0,581	0,581	0,062	9,372	0,000	Accepted
H4. EGT -> EGA	0,159	0,157	0,065	2,445	0,015	Accepted
H5. EGS -> EGA	0,067	0,068	0,057	1,169	0,242	Rejected

Source: Own Elaboration

5. Discussion

The analysis shows e-service quality significantly impacts public satisfaction and trust, emphasizing the importance of high-quality digital services to foster satisfaction and positive beliefs. These findings align with prior research (Obaid & Ahmadb, 2022; Setiawan & Septiani, 2018). The findings align with the concept that transparent, efficient, accountable, and responsive digital public services can enhance public satisfaction. However, public satisfaction does not correlate with e-government adoption, despite the impact of trust and e-government attributes. This deepens understanding of e-service quality's role in building trust and satisfaction, and the need to explore other factors influencing the satisfaction-adoption relationship.

6. Conclusion

This study examines the significance of e-government attributes and their influence on public trust, satisfaction, and intention to use e-government services in Ho Chi Minh City, Vietnam's largest metropolis. The findings confirm e-government attributes positively impact public trust and satisfaction, but satisfaction does not directly correlate with the intention to use e-government services. In terms of practical implications, the results suggest the Vietnamese government in Ho Chi Minh City has been successful in maintaining key e-government attributes, resulting in high levels of public trust and satisfaction. Overall, the study underscores the pivotal role of public trust and satisfaction in shaping behaviors towards e-government, emphasizing the need for government organizations to prioritize increasing public satisfaction in their digital transformation efforts.

Despite the study's valuable contributions, it has several key limitations. First, the research was conducted only in Ho Chi Minh City, which represents views from southern Vietnam, not the entire Vietnamese population. Future studies should include samples from across Vietnam's regions to improve generalizability. The quantitative approach used may restrict an in-depth understanding of individual perspectives. Incorporating qualitative methodologies or mixed methods could provide richer insights into factors influencing e-government adoption and the relationships between variables.

Acknowledgement: This research is funded by International University, Vietnam National University VNU-HCM under grant number SV2022-PM-02.

References

- Abdulkareem, A. K., & Mohd Ramli, R. (2022). Does trust in e-government influence the performance of e-government? An integration of information system success model and public value theory. *Transforming Government: People, Process and Policy*, 16(1), 1–17. <https://doi.org/10.1108/TG-01-2021-0001>
- Alblooshi, T., Azli, M., Hilmi, M. F., Abudaqa, A., & Ahmed, G. (2023). Examining the trends in citizen satisfaction towards e-government services in United Arab Emirates: a structural equation modelling approach. *International Journal of Services, Economics and Management*, 14(1), 58. <https://doi.org/10.1504/IJSEM.2023.129597>

- Aljukhadar, M., Belisle, J.-F., Dantas, D. C., Sénécal, S., & Titah, R. (2022). Measuring the service quality of governmental sites: Development and validation of the e-Government service quality (EGSQUAL) scale. *Electronic Commerce Research and Applications*, 55, 101182. <https://doi.org/10.1016/j.elerap.2022.101182>
- Aprilia, C., & Amalia, R. (2023). Perceived Security and Technology Continuance Theory: An Analysis Of Mobile Wallet Users' Continuance Intention. *Global Business Review*, 097215092211458. <https://doi.org/10.1177/09721509221145831>
- Bélanger, F., & Carter, L. (2008). Trust and risk in e-government adoption. *The Journal of Strategic Information Systems*, 17(2), 165–176. <https://doi.org/10.1016/j.jsis.2007.12.002>
- Beshi, T. D., & Kaur, R. (2020). Public Trust in Local Government: Explaining the Role of Good Governance Practices. *Public Organization Review*, 20(2), 337–350. <https://doi.org/10.1007/s11115-019-00444-6>
- Chawla, D., & Joshi, H. (2019). Consumer attitude and intention to adopt mobile wallet in India – An empirical study. *International Journal of Bank Marketing*, 37(7), 1590–1618. <https://doi.org/10.1108/IJBM-09-2018-0256>
- da Cruz, N. F., Tavares, A. F., Marques, R. C., Jorge, S., & de Sousa, L. (2016). Measuring Local Government Transparency. *Public Management Review*, 18(6), 866–893. <https://doi.org/10.1080/14719037.2015.1051572>
- Fogg, B. J., Soohoo, C., Danielson, D. R., Marable, L., Stanford, J., & Tauber, E. R. (2003). How do users evaluate the credibility of Web sites? *Proceedings of the 2003 Conference on Designing for User Experiences*, 1–15. <https://doi.org/10.1145/997078.997097>
- Giao, H. N. K. (2020). Customer satisfaction at Tiki. vn E-commerce platform. *Journal of Asian Finance, Economics and Business*, 7(4), 173–183. <https://doi.org/10.13106/JAFEB.2020.VOL7.NO4.173>
- Hariguna, T., & Berlilana, B. (2017). Understanding of Antecedents to Achieve Customer Trust and Customer Intention to Purchase E-Commerce in Social Media, an Empirical Assessment. *International Journal of Electrical and Computer Engineering (IJECE)*, 7(3), 1240. <https://doi.org/10.11591/ijece.v7i3.pp1240-1245>
- Hariguna, T., Hung, C. W., Lai, M. T., & Chen, S. C. (2017). Understanding information system quality on public e-government service intention: an empirical study. *International Journal of Innovation and Sustainable Development*, 11(2/3), 271. <https://doi.org/10.1504/IJISD.2017.10003595>
- Hariguna, T., Ruangkanjanases, A., & Sarmini. (2021). Public Behavior as an Output of E-Government Service: The Role of New Technology Integrated in E-Government and Antecedent of Relationship Quality. *Sustainability*, 13(13), 7464. <https://doi.org/10.3390/su13137464>
- Hartanto, D., Dalle, J., Akrim, A., & Anisah, H. U. (2021). Perceived effectiveness of e-governance as an underlying mechanism between good governance and public trust: a case of Indonesia. *Digital Policy, Regulation and Governance*, 23(6), 598–616. <https://doi.org/10.1108/DPRG-03-2021-0046>
- Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. *Industrial Management & Data Systems*, 116(1), 2–20. <https://doi.org/10.1108/IMDS-09-2015-0382>
- Li, Y., & Shang, H. (2020). Service quality, perceived value, and citizens' continuous-use intention regarding e-government: Empirical evidence from China. *Information & Management*, 57(3), 103197. <https://doi.org/10.1016/j.im.2019.103197>
- Matemba, E. D., & Li, G. (2018). Consumers' willingness to adopt and use WeChat wallet: An empirical study in South Africa. *Technology in Society*, 53, 55–68. <https://doi.org/10.1016/j.techsoc.2017.12.001>

- Newcomer, K. (2020). Accountability and Trust in Government: What's Next? *Revista Da CGU*, 12(22), 343–350. <https://doi.org/10.36428/revistadacgu.v12i22.368>
- Nguyen, T. T., Phan, D. M., Le, A. H., & Nguyen, L. T. N. (2020). The Determinants of Citizens' Satisfaction of E-Government: An Empirical Study in Vietnam. *The Journal of Asian Finance, Economics and Business*, 7(8), 519–531. <https://doi.org/10.13106/jafeb.2020.vol7.no8.519>
- Noor, M. (2022). The effect of e-service quality on user satisfaction and loyalty in accessing e-government information. *International Journal of Data and Network Science*, 6(3), 945–952. <https://doi.org/10.5267/j.ijdns.2022.2.002>
- Obaid, Q. M. S., & Ahmadb, M. F. (2022). The impact of service quality, system quality on citizen's satisfaction with mediating role of trust in E-Government. *Central European Management Journal*, 30(3).
- Porumbescu, G. A., Grimes, M., & Grimmellikhuijsen, S. (2021). Capturing the social relevance of government transparency and accountability using a behavioral lens. *Journal of Behavioral Public Administration*, 4(1). <https://doi.org/10.30636/jbpa.41.241>
- Sarkar, S., Chauhan, S., & Khare, A. (2020). A meta-analysis of antecedents and consequences of trust in mobile commerce. *International Journal of Information Management*, 50, 286–301. <https://doi.org/10.1016/j.ijinfomgt.2019.08.008>
- Setiawan, E., & Septiani, S. (2018). Pengaruh E-Service Quality Dan E-Trust Terhadap Kepuasan Pelanggan Pengguna Moda Transportasi Grab di Tangerang Selatan. *Jurnal Manajemen Dan Kearifan Lokal Indonesia*, 2(1), 54. <https://doi.org/10.26805/jmkli.v2i1.24>
- Six, F., de Vadder, S., Glavina, M., Verhoest, K., & Pepermans, K. (2023). What drives compliance with COVID-19 measures over time? Explaining changing impacts with Goal Framing Theory. *Regulation & Governance*, 17(1), 3–21. <https://doi.org/10.1111/rego.12440>
- Thoms, P., Dose, J. J., & Scott, K. S. (2002). Relationships between accountability, job satisfaction, and trust. *Human Resource Development Quarterly*, 13(3), 307–323. <https://doi.org/10.1002/hrdq.1033>
- Van Doeveren, V. (2011). Rethinking Good Governance. *Public Integrity*, 13(4), 301–318. <https://doi.org/10.2753/PIN1099-9922130401>
- Welch, E. W., Charles, C. H., & M. Jae Moon. (2004). Linking Citizen Satisfaction with E-Government and Trust in Government. *Journal of Public Administration Research and Theory*, 15(3), 371–391. <https://doi.org/10.1093/jopart/mui021>
- Yang, C., & Northcott, D. (2019). How can the public trust charities? The role of performance accountability reporting. *Accounting & Finance*, 59(3), 1681–1707. <https://doi.org/10.1111/acfi.12475>

Bullish or Bearish? does Investor Sentiment Impact Energy Company Profit Spread

Naima Bentouir. University of Ain Temouchent, LMELSPM. Algeria.
naima.bentouir@univ-temouchent.edu.dz

Ana Pinto Borges. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC); IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal.
anaborges@isag.pt

Elvira Pacheco Vieira. ISAG-European Business School and Research Center in Business Science and Tourism (CICET-FCVC), Porto, Portugal & IPVC-Polytechnic Institute of Viana do Castelo and Applied Management Research Unit (UNIAG), Instituto Politécnico de Bragança, Portugal. elvira.vieira@isag.pt

Mohammed El Amine Abdelli. University of Western Brittany, Western Economics and Management Laboratory - LEGO, France, country. abdelli.univ@gmail.com.

Atilla Akbaba. University of Izmir Katip Çelebi, Turkey. atilla.akbaba@ikc.edu.t

Abstract

Purpose: This study examines how investors' sentiment impacted the profit spreads of three major energy companies: BP PLC, Chevron, and Exxon Mobil, from 2014 to 2024. Given the recent spike in volatility in the oil industry caused by COVID-19 and the Russia-Ukraine crisis, it is necessary to examine how investor emotions impact profit spreads in addition to the more traditional causes.

Methodology: We investigate the relationship between a weekly investor sentiment index and daily profit spreads using a MIDAS regression approach. Additionally, the results are compared using standard linear regressions. Weekly data for January 3, 2014, to May 6, 2024, and daily data for January 9, 2014, to May 9, 2024, are used in the study.

Results: We expect the MIDAS regressions to show a nuanced link between profit spreads and investor mood. A nuanced influence would be suggested by the mixed positive and negative signs across different lags, even if some lagged sentiment variables would have statistically significant coefficients. This could be different from what regular linear regressions find.

Chevron

The analysis of Chevron's daily stock returns using MIDAS regressions suggests that investor sentiment might not have a clear-cut impact. While a strong negative mean reversion effect exists (where yesterday's return influences today's in the opposite direction), the sentiment index's coefficients in the MIDAS regressions were not statistically significant. This indicates other factors likely play a larger role in influencing Chevron's daily returns. This could be because the oil and gas industry focus on long-

term projects and may prioritize stable cash flow, making daily stock prices less responsive to short-term investor sentiment. However, limitations exist in this analysis, and a larger dataset or further analysis might be needed for a more definitive conclusion.

Exxon Mobil

Examining MIDAS regressions for Exxon Mobil revealed an unclear link between investor sentiment and daily stock returns. Unlike a standard regression, some lags of the sentiment index showed statistically significant relationships in MIDAS, but the positive and negative signs suggest a complex influence. This contrasts somewhat with the inconclusive results for Chevron, but could be due to the oil and gas industry's focus on long-term factors and Exxon Mobil's potential prioritization of stable cash flow, limiting the daily price impact of investor sentiment. While limitations exist, these results suggest investor sentiment might not significantly affect Exxon Mobil's daily stock price, potentially influencing its profit spread in a way that differs from other companies.

BP PLC

Analyzing MIDAS regressions for Exxon Mobil (DEXXON) and BP (DBP) revealed an unclear influence of investor sentiment on their daily stock returns. While there were some statistically significant coefficients for lagged sentiment terms in the MIDAS regressions, the mixed positive and negative signs across different lags suggest a complex relationship, not a clear positive or negative impact. This is similar to the findings for Chevron and strengthens the notion that investor sentiment might not be a major driver for daily stock prices in the oil and gas industry. This could be due to the industry's focus on long-term factors like global oil prices and the potential prioritization of stable cash flow by these companies, limiting the daily price impact of short-term sentiment swings. It's important to remember that limitations exist, and further analysis or a larger dataset might be necessary for a more definitive answer. However, these results suggest investor sentiment might not significantly affect the daily stock price of these oil and gas companies, potentially influencing their profit spreads in a way that differs from companies in other sectors.

Research limitations: This study acknowledges limitations inherent to the MIDAS framework. The model might not capture all factors influencing daily profit spreads. Additionally, the chosen period might not fully capture long-term trends.

Originality: This study adds to the body of knowledge by looking into the impact of investors' sentiment on profit spreads in the energy industry, which has recently experienced increasing volatility as a result of global events. It uses the MIDAS approach to model the dynamic link between high-frequency investor sentiment and low-frequency profit spreads. It also compares the findings of MIDAS regressions to typical linear regressions to gain a more complete insight.

Keywords: *Bullish; Bearish; Investors' sentiment; Profit spread; Impact; MIDAS.*

Session – “A Destination Redefined – Digital Nomads, Apps, and Tourism Investment”

Chair: Rui Rosa Dias

An insight into the Journey of Digital Nomads in Portugal

Madalena Eça de Abreu. Polytechnic University of Coimbra, Rua da Misericórdia, Lagar dos Cortiços, S. Martinho do Bispo, 3045-093 Coimbra, Portugal. CEOS.PP-Coimbra, Portugal. mabreu@iscac.pt

Luana Pinheiro Sampaio. Polytechnic University of Coimbra, Rua da Misericórdia, Lagar dos Cortiços, S. Martinho do Bispo, 3045-093 Coimbra, Portugal. a2021107173@alumni.iscac.pt

Abstract

Purpose: The aim of this study is to understand the reasons why digital nomads are increasingly seeking and choosing Portugal as their home. It also aims to map the consumer journey of 'digital nomads', consumers who combine work, leisure, travel and self-fulfilment in their daily routines.

Methodology: In terms of methodology, in addition to a literature review, questionnaires will be used to assess the profile, lifestyle and decision-making process of digital nomads in Portugal.

Results: The present analysis shows that the main criteria for choosing Portugal as a temporary location are related to the search for a balance between life and work. In addition, its strategic location offers easy access to other countries and safe transport systems. In terms of critical factors for decision making, the local cost of living had a significant impact. In relation to There is little difference between the sexes within this group. The predominant age group is between 25 and 49 years, made up of people with at least tertiary education, who tend to work in the administrative sector, which includes several occupations.

Research limitations: The paucity of literature on this specific topic was a major limitation of this study. Another important limitation is the issue of sampling. Finding digital nomads willing to participate in research can be challenging, especially given the mobile and dispersed nature of this group.

Originality: The study provides an opportunity to understand and harness the potential of digital nomads in relation to Portugal and local businesses, while adding scientific data

to the literature. This will create an important link between these professionals and Portugal, boosting the economy and promoting the country's development.

Keywords: *Digital Nomadism; Remote Work; Marketing; Tourism; Portugal.*

1. Introduction

In recent years, technology has transformed the world around us. Consequently, the way of life and the organisation of work in society have been profoundly affected. According to Hannonen (2020), contemporary processes of global market formation and the development of transport and communication technologies are leading to the emergence of new social formations, patterns, and opportunities. The COVID-19 pandemic was a catalyst for these changes by restricting people's movement and forcing the market to adapt more quickly to remote working.

Digital nomads represent a specific subset of those engaged in distance work, characterised by a leisure and tourism orientation. The ability to work remotely is contingent upon the availability of a computer and a reliable internet connection. Consequently, individuals have chosen to embrace the experience of not having a fixed domicile and living as nomads, traversing different locations around the globe for an extended period.

Indeed, Portugal has recently implemented policies with the objective of facilitating the access and stay of digital workers in the country. These policies include the issuance of special visas combined with the granting of tax benefits (Bloomberg, 2022). Despite the importance of attracting this audience, this practice has been the subject of questions and criticism from the Portuguese population. Some argue that the constant increase in the cost of living is driven by digital workers, who often receive higher salaries than the general population.

In order to gain a deeper insight into this phenomenon and its implications for territorial marketing, this study will examine the experiences of digital nomads in Portugal.

2. Literature Review

a. Digital nomads

The term "nomadism" has its origins in the Paleolithic era. The term "nomad" is derived from the Greek word "nomos," meaning "law," and refers to a people who did not have a fixed home and remained in the same geographical space only as long as there were resources for their subsistence (César & Santos, 2017). Currently, there are various types of nomadism, including those who continue to move in search of food and shelter, and those who plan to spend a certain amount of time exploring new places but who fit into the nomadic category because they leave their homes behind and risk this lifestyle, even for a short period of time (Oliveira, 2019). As defined by Reichenberger (2018), digital nomads are primarily young professionals who live a location-independent lifestyle. This entails the ability to work remotely, allowing them to work and travel simultaneously.

It is crucial to comprehend the universe of this novel social group that espouses a lifestyle characterized by the freedom to travel while working, supported by professions in the digital world (Araújo, 2023). Digital nomadism is emerging as one of the most recent technological developments in the history of technology, accompanied by changes in the way societies and economies are organized (Wang, et al., 2029; Schlagwein, 2019).

In this context, the younger generation of professionals, disillusioned with the processes, routines, perspectives, and values of the traditional labor market, is leveraging technological advances and the convenience of online services, such as banking, remote working, renting temporary accommodation, co-working on platforms, and so forth, to facilitate this lifestyle (Neves, 2020).

Furthermore, as outlined by Pereira and Gosling (2019), one of the key motivations for travel is the desire to experience cultural diversity, embark on adventures and overcome challenges, seek out new experiences and have stories to tell. This perspective is consistent with the nomadic universe, where

experiences become opportunities to discover different lifestyles, explore new work and learning opportunities, provide personal development in the face of challenges and adaptations to the environment, build networks, and so forth.

As highlighted by Miranda (2023), it is essential to understand that digital nomadism is not restricted to a specific profession, but rather to a comprehensive lifestyle. This encompasses a wide range of incomes, from those enjoying a substantial income to those facing significant financial challenges. Furthermore, the variety of options available to nomads is not limited to the "adventurous" lifestyle and search for new experiences, but also extends to everyday choices. Many digital nomads choose to work in coworking spaces, live in colivings or simply rent a house in order to experience their unique moment. The diversity of lifestyle choices not only promotes the regional economy, but also creates market opportunities to meet the growing demand of this population. Therefore, this audience is generally attracted to destinations that offer solid infrastructure. The quest to maintain a balance between professional and personal life is an essential priority for them. It is also essential to recognize the diversity of financial situations of digital nomads. In Europe, the encouragement of remote work has been notable, with a predominance in the banking sector. In addition to cost reduction, there is a greater balance between employees' personal and professional lives.

b. The current Portuguese scenario of digital nomadism

The Portuguese government has shown interest in attracting digital nomads by launching programs and initiatives that offer tax and support incentives. In 2022, Portugal presented new features in the country's aliens' law, with the creation of a specific visa for digital nomads. This visa is intended for individuals whose official name in Portuguese territory is seen for carrying out professional activities provided remotely outside the national territory. The new authorization is part of Article 61º B of Law No. 23/2007 (Western Union, 2023). According to the Voyages et Travail Index ranking published by the website Kayak, Portugal is the most favourable country for digital nomads. Based on the analysis of 22 items, the country received a final score of 100/100. Among the factors analysed in the

ranking, safety indices, health services, pleasant climate, stable politics, large number of English speakers, affordable cost of living, ease of travel, and others, stand out (Lenzi, 2022). Promoting Portugal as an attractive destination for remote workers appears to be a fundamental tactic to stimulate recovery and boost various sectors of the economy. The country can leverage its advantageous circumstances, including a distinctive blend of digital infrastructure, a relatively affordable cost of living, a high quality of life, and government support. These strengths significantly contribute to the consolidation of Portugal's reputation as a popular destination for these professionals.

This audience not only consumes local products and services, but also stimulates business, driving the creation of new spaces or improving existing ones. The practice of sharing experiences online has become a common occurrence among this niche, which has the effect of attracting more visitors, boosting the economy and the region, and expanding the possibilities of promoting the destination in different ways.

In conclusion, the country offers a reliable and fast digital infrastructure, as well as an affordable cost of living in comparison to other European countries. The quality of life in Portugal is high, and this is enhanced by a pleasant climate, beautiful landscapes and a rich culture. Cities such as Lisbon, Porto and Faro have established communities of digital nomads, offering coworking spaces and an entrepreneurial atmosphere.

3. Methodology

The principal research question is to gain insight into the phenomenon of digital nomads and the primary factors that have led to Portugal being selected as a destination for this demographic in recent years. Additionally, the study aims to assess the consequences of this decision.

Following the literature review, a questionnaire was developed comprising closed and multiple-choice questions. These were designed to elicit information on the topic in question, with a particular focus on profiling the profile, lifestyle and decision-making process of digital nomads. A series of questions were

developed, organized into four blocks of analysis. The first block focused on profiling digital nomads and remote workers, collecting information on gender, age group, region of origin, level of education and area of professional activity. The second block of analysis aimed to ascertain the reasons given for adopting the digital nomad and remote worker lifestyle. The third block of analysis sought to elucidate the decision-making process of this target group in relation to Portugal. The fourth block of analysis aimed to investigate the relationship between digital nomads' experiences and their levels of satisfaction.

The questionnaire was disseminated on digital platforms frequented by digital nomads, where experiences are typically shared, and information sought. These platforms include What's App groups and Facebook communities. The data collection period spanned four weeks, concluding in the last month of 2023. All data collected was treated in strict confidence and was used exclusively for statistical purposes.

4. Results

The sample consisted of 68 participants, without limitations on gender, age or nationality, with the aim of obtaining the greatest number and diversity of participants possible. Furthermore, the sample sought to understand both those who have already been to Portugal and those who intend to visit the country soon.

In the profile of the nomads analyzed, there is a slight predominance of the male profile. Most of the studied population falls within the 35 to 49 age group, followed by the 25 to 34 age group. The 18 to 24 age group represents a smaller proportion, followed by the other age groups. In terms of academic training, over 80% of those analyzed have university education, with the majority of these in Europe. Regarding the economic sector, various sectors were identified, including business intelligence, finance, marketing, tourism, communication and logistics. Among the reasons given for adopting the digital nomad and remote worker lifestyle, flexibility was highlighted as the main one. Secondly, the global professional opportunity and thirdly the search for geographic freedom and personal satisfaction, and reduction in the cost of living was the least selected reason. For selecting a location to settle, the first criterion is to identify an environment that balances the necessities of daily life, such as transportation,

supermarkets, healthcare services, and green spaces, with an area that is conducive to work, that is, a satisfactory quality of life. In contrast, the simplification of the bureaucratic procedures involved in establishing a local residence is a significant factor. Thirdly, the availability of high-quality internet and resources is considered crucial.

In response to the third block of questions regarding the criteria for selecting Portugal as a destination, the representative highlighted that the country's strategic location serves as a gateway to other European destinations, offering convenient and accessible transportation options. Furthermore, the mild climate is an attractive feature for those seeking a destination with favorable weather conditions for the majority of the year. Furthermore, the country's cultural diversity, rich history, distinctive architecture, diverse cuisine and local traditions are all appealing aspects.

Furthermore, when considering Portugal as a destination, the first critical factors are the consideration about the essential expenses required to maintain a basic standard of living. The assessment of the quality of local infrastructure, accommodation, and security was found to be of a similar weight. The relationship between available transport, access to health services and quality public services, including drinking water, electricity, gas, telephone, internet, as well as varied environments such as co-living, hostels, houses, apartments and rooms for leasing, was also considered important. Furthermore, the significance of the locations to be visited was also highlighted. Furthermore, issues pertaining to documentation and legalization were also discussed, including the search for lawyers specializing in immigration and an understanding of the necessary processes for gaining access to the country.

To attain public satisfaction, it is necessary to consider the most important experiences. In the professional context, networking opportunities and proximity to technology companies were identified as two of the most important aspects. It is also of great importance to consider the relationship between professional experiences, which can be defined as networking opportunities, and personal experiences, which can be defined as exploring local culture and leisure.

5. Discussion

Most respondents originate from Europe and are employed in administrative roles, which encompass a range of occupations. This results in a broad and versatile profile, which is characterized by a desire for flexibility in their lives and careers. This presents several facets that can be explored in the market. It is also important to note that there is no significant difference between the sexes within this group.

The primary considerations underlying the decision to select Portugal as a temporary residence are related to the pursuit of a harmonious equilibrium between one's professional and personal lives. Portugal offers a unique combination of advantages, combining a robust infrastructure with a vibrant cultural and entertainment landscape. Its infrastructure provides a conducive environment for professionals to thrive in their careers, while its diverse leisure options, rich culture, and diverse forms of entertainment provide a balance between work and leisure. Moreover, its advantageous geographical position facilitates convenient access to other countries and ensures the reliability of transport networks. Furthermore, the country's strategic location provides convenient access to other countries and reliable transportation networks.

The analysis of the local cost of living also had a significant impact on the decision-making process. The recent decline in purchasing power and growth in income levels in Portugal present a challenge to both the transient population in the country and the general population.

Additionally, the simplicity of obtaining or resolving issues related to residence, visas, and documentation serves as a motivating factor for workers to remain or expand their access to desired locations.

With regard to the most significant experiences that contribute to satisfaction, there is a correlation between professional experiences, which are perceived as

networking opportunities, and personal experiences, which are seen as an opportunity to explore local culture and leisure. Once more, the pivotal equilibrium between life and work is brought to the fore. These experiences extend beyond the mere accumulation of moments; rather, they represent a quest for personal and professional growth and development, achieved through the expansion of horizons and the establishment of new connections.

6. Conclusion

In general, there is a correlation between professional experiences, which are regarded as networking opportunities, and personal experiences, which are viewed as an opportunity to explore local culture and leisure. It is evident that the delicate equilibrium between one's professional and personal lives is of paramount importance.

Marketing plays a pivotal role in establishing a connection between the target audience and their desires through the implementation of well-designed strategies. In this study, the exploration of local culture was emphasized in conjunction with the dissemination of professional opportunities, with the objective of attracting and retaining digital nomads.

Furthermore, this study highlights the significance of exploring local culture in conjunction with the dissemination of professional opportunities in order to attract and retain digital nomads. In addition to identifying appealing content for this specific demographic, the variety of communication channels and the creation of tailored activities to balance work and leisure are effective strategies for attracting and retaining remote workers.

This audience represents a potential demand to be met, particularly for companies and regions that seek to offer differentiated products and services. There is a potential for adaptation of strategies and approaches to meet the specific needs of this diverse group of digital nomads, considering their varying skills, experiences, and work preferences.

For future investigations, it is essential to seek to expand the database and deepen the understanding of the real needs of digital nomads. The main limitation of the study was the lack of extensive sampling and the focus on Europe.

References

- Araújo, N. (2023). *Nômadas digitais: Perfil, tendências e desafios para o futuro do turismo em Portugal*. Escola Superior de Educação - Politécnico de Coimbra.
- Bloomberg. (2022, October 18). *Portugal terá visto para nômade digital este mês; conheça as regras*. O Globo. <https://oglobo.globo.com/economia/noticia/2022/10/portugal-tera-visto-para-nomade-digital-este-mes-conheca-as-regras.ghtml>.
- César, R. V. de M., & Santos, S. V. C. de A. (2017). Nomadismo digital e educação. *Simpósio Internacional de Educação E Comunicação - SIMEDUC*, 8(8). <https://eventos.set.edu.br/simeduc/article/view/8567>.
- Hannonen, O. (2020). In search of a digital nomad: Defining the phenomenon. *Information Technology & Tourism*, 22(3), 335–353. <https://doi.org/10.1007/s40558-020-00177-z>
- Lenzi, T. (2022, novembro 7). *Visto para nômade digital em Portugal: como tirar a residência*. Nacionalidade Portuguesa Assessoria. <https://www.nacionalidadeportuguesa.com.br/visto-nomade-digital-em-portugal>.
- Miranda, L. (2023). Nômade Digital: o que é, quanto ganha e como se tornar um. Quero bolsa.com.br. <https://querobolsa.com.br/revista/nomade-digital>.
- Oliveira, A.P. (2019). Vida em fluxo: Nomadismo digital como forma de ser e estar na contemporaneidade. *Tese de graduação, Universidade de Brasília, Faculdade de Comunicação, Curso de Comunicação Social - Publicidade e Propaganda, Brasília, Brasil*.
- Pereira, G., & Gosling, M. (2019). Push and pull motivations of Brazilian travel lovers. *Brazilian Business Review*, 16(1), 63–86. <https://doi.org/10.15728/bbr.2019.16.1.5>
- Reichenberger, I. (2017). Digital nomads – a quest for holistic freedom in work and leisure. *Annals of Leisure Research*, 21(3), 364–380. <https://doi.org/10.1080/11745398.2017.1358098>
- Schlagwein, D. (2018, dezembro 13). *The History of Digital Nomadism*. ResearchGate. https://www.researchgate.net/publication/329182172_The_History_of_Digital_Nomadism.
- Wang, B., Schlagwein, D., CecezKecmanovic, D., & Cahalane, M. (2019). *Digital Nomadism and the Market Economy: Resistance and Compliance*. Conference: International Conference on Information Systems (ICIS).
- Western Union. (2023, agosto 4). *Como funciona o visto de nômade digital em Portugal*. Blog | Western Union. <https://www.westernunion.com/blog/pt/visto-nomade-digital-portugal/>.

Apps as travel companions: What motivates or hinders their use?

Raquel Pedrosa. ISAG-European Business School (ISAG-EBS) & Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal. raquel.pedrosa@isag.pt

Vanda Vereb. ISAG-European Business School (ISAG-EBS) & Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal. vanda.vereb@isag.pt

Abstract

Purpose: With mobile travel apps reaching record high download rates and the online travel industry set to double in the next five years, understanding what motivates and hinders app usage is essential. As technological trends evolve, so do the expectations of different user groups. This research focuses on travellers' experiences with mobile travel apps to better understand their motivations and constraints. Customers are increasingly demanding, seeking both efficiency and entertainment, making product quality a baseline expectation rather than a differentiator. Understanding customer requirements and expectations is crucial.

Methodology: The study adopted the extended UTAUT2 model by Venkatesh et al. (2012), enhanced with variables from Gupta and Dogra (2017) such as credibility, perceived security, technology anxiety, and innovation. The research analysed factors influencing the adoption and resistance to mobile travel app usage in tourism, identifying patterns in motivations and constraints. A quantitative methodology was employed through an online survey, receiving 106 responses. The conceptual model guided the survey design, integrating the new variables. Conducted in Portugal, the study targeted locals (Portuguese nationals) and expatriates (non-Portuguese nationals living in Portugal). The survey, available in English and Portuguese, was distributed via the research centre's social media.

Results: This study contrasts travel app usage characteristics between locals and expatriates, exploring motivations and constraints. Findings reveal no significant differences in hindrances to app usage; both groups are primarily concerned with credibility, followed by privacy and security issues. By now, a lack of digital skills means no hinderance in mobile travel app usage. Expatriates are interested in mobile travel apps out of their habitual use of technology, whereas the locals in Portugal seek to use travel apps for their efficiency. Both groups identified a lack of gamification features as a significant shortcoming, noting that while apps are efficient, they are not enjoyable. In comparing local and international travels, accommodation, flight booking, and local navigation are the most used features, with shopping being almost irrelevant. This indicates that travellers do not differentiate between local and international travel when using apps, but their why and how they use this apps differ among different types of travels.

Limitations: This study is still in its pilot phase, and the results are preliminary, based on a limited sample size. A key limitation is that it focuses exclusively on Portugal, examining both locals and expatriates living there. While this provides a detailed picture of the Portuguese reality, the findings may not be generalizable beyond Portugal.

Originality: Previous research on mobile travel applications has primarily focused on the applications and their features. This study advances the field by examining the travellers themselves and their experiences. It creates user profiles for both seasoned expatriate and local travellers, highlighting their main differences. By contrasting travel habits and identifying motivating and constraining factors of app usage in both local and international travels and for both local and expatriates travellers, this research fills crucial gaps and provides a comprehensive understanding of mobile travel app usage in diverse travel contexts.

Keywords: *Travel Application; Mobile Application; Expatriate traveller; Online Travel Industry; Travel motivation; Travel constraint.*

How tourism capital investment affects different pillars of decent work? Evidence from European Union countries

Daniela Castilho. Faculty of Economics, Centre for Business and Economics Research (CeBER), University of Coimbra, 3004-531 Coimbra, Portugal. Correo-e: danielareis1997@hotmail.com

José Alberto Fuinhas. Faculty of Economics, Centre for Business and Economics Research (CeBER), University of Coimbra, 3004-531 Coimbra, Portugal. Correo-e: fuinhas@uc.pt

Abstract

Purpose: The role of tourism investment in economic development extends beyond merely increasing employment opportunities; it can profoundly shape the labor market landscape. However, the focus on job quantity often overshadows the essential discussion about job quality. Prevalent issues within tourism-related employment, such as the predominance of seasonal and part-time jobs, coupled with low wages and excessive working hours, underscore the critical need for a shift towards decent work principles. These principles advocate not only for employment generation but also for the enhancement of work quality, fairness, and dignity, which are captured through four pillars: job creation, social protection, rights at work, and social dialogue. Given the previous statements, a nuanced examination of how tourism capital investment specifically influences each aspect of decent work becomes imperative.

Methodology: A Panel Autoregressive Distributed Lag (PARDL) model was employed for a group of 15 European Union countries over the period from 2002 to 2019 since it supports I(0) and I(1) orders of integration in the same estimation, is robust in the presence of endogeneity, and allow us to assess the impacts of tourism capital investment on each pillar of decent work, both on short and long run. More specifically, this analysis comprised four distinct models: Model I examine the influence of tourism investment on job creation, Model II assess its impact on social protection, Model III investigate its effects on workers' rights, and Model IV explore its implications for social dialogue.

Results: The main findings of Model I indicate that tourism investment and trade significantly foster job creation, both in the short and long run. Information and Communication Technology (ICT) is observed to augment job creation in the short run, while the direct contribution of tourism to employment enhances job creation in the long run. On contrary, vulnerable employment results in a decrease in job creation in the short run.

Model II reveals that tourism capital investment positively impacts social protection, whereas the tourism direct contribution to employment tends to decrease social protection, with both effects noted in the long run. Moreover, ICT positively influences social protection, both in the short and long run. Conversely, trade adversely affects social protection benefits, and vulnerable employment showing no statistical significance.

The results from Model III indicate a positive running from trade to rights at work, alongside a negative impact from both ICT and vulnerable employment on rights at work, both in the short and long run. Lastly, tourism investments and the direct contribution of tourism to employment seem to improve rights at work, but only in the long run.

Finally, Model IV shows that trade exerts a negative impact on social dialogue, both in the short and long run. Furthermore, tourism capital investment, the direct contribution of tourism to employment, ICT, and vulnerable employment have negative effects on social dialogue, but these are only evident in the long run.

Originality: Efforts to clearly define and measure the concept of decent work often encounter challenges due to the wide variety of data and methodologies in use, leading to a disorganized set of indicators to represent this concept. To address this issue, as we have highlighted earlier, our approach simplifies this by selecting one specific indicator for each pillar of decent work. Posteriorly, we individually analyze how tourism investments impact each of these chosen indicators, aiming for greater clarity and coherence in our assessment.

Keywords: *Tourism capital investment; Decent work; Sustainable development goals; European Union; PARDL.*

Acknowledgements: This work was supported by the CeBER: R&D unit funded by National Funds through FCT - Fundação para a Ciência e a Tecnologia, I.P., project [UIDB/05037/2020]; and by the FCT – Fundação para a Ciência e a Tecnologia, I.P., PhD fellowship [2022.13300.BD].

Port Wine – New Horizons and New Markets: A Case Study

Tiago Monteiro. ISAG-European Business School (ISAG-EBS) & Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal. tiago05andre@gmail.com

Hetaiel Catihe. ISAG-European Business School (ISAG-EBS) & Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal. hetaielmiguel@gmail.com

Márcia Lemos. ISAG-European Business School (ISAG-EBS), Research Center in Business Sciences and Tourism (CICET - FCVC) & Centre for English, Translation and Anglo-Portuguese Studies (CETAPS - FLUP), Portugal. marcia.lemos@isag.pt

Raquel Pedrosa. ISAG-European Business School (ISAG-EBS) & Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal. raquel.pedrosa@isag.pt

Rui Rosa Dias. ISAG-European Business School (ISAG-EBS), Research Center in Business Sciences and Tourism (CICET - FCVC) & Instituto Português de Administração de Marketing - IPAM Porto.

Abstract

Purpose: According to Le, H.T.P.M., Ren, T. and Park, J. (2023), quality and premium brand authenticity are two important predictors of perceived value and, as we know, the image of Port Wine around the world is deeply associated with quality. The main goal of this study was to identify new market opportunities for the Port Wine cluster. There are some indicators showing that this cluster is in the maturity stage and suffers from hard global competition. Starting from this evidence, three main goals were designed: i) to select and study the Port Wine external market environment; ii) to propose some multimedia strategies to improve Port Wine sales and, at the same time, to identify new market opportunities; and iii) to develop a real case study introducing the students from three interdisciplinary ISAG-EBS courses - International Management, English II and Multimedia Content and Media Production - to research and critical thinking.

Methodology: The case presented here was carried out as part of an interdisciplinary project that aimed to get students to integrate knowledge from the International Management, English II and Multimedia Content and Media Production curricular units, by applying it to a practical work that could be interesting to international markets.

Bearing in mind the potential of Port Wine and the particular characteristics of this product when considering it as part of the Portuguese cultural heritage, the teaching team suggested that the research should focus on promoting Port Wine in new markets that are still underdeveloped at an international level.

To this end, a master class was first held, at ISAG, on March 28, with a guest speaker, George Sandeman, a Port Wine specialist and CEO of [Exampulla](#), who gave a contextualization on Port Wine, its characteristics, existing markets and the product's potential in terms of exporting it to new markets.

This was followed by a period of reflection by the students, guided by the teachers, which culminated in the creation of interview scripts to be conducted with experts in podcast format.

In addition to these interviews, the students were encouraged to research information about the market in order to find out which countries import Port Wine the most and which markets are still under-explored.

Results: Based on the methodology presented, the students delved into the selected topic in the following way: in International Management, they analyzed the expert interviews and researched and gathered more information; in English II, they translated texts originally written in Portuguese into English; and, in Content Production and Multimedia, they integrated all the information into a multimedia support. The outcomes are the following:

- Logo for the project



- [Podcast with George Sandeman](#) - from Exampulla;
- [Podcast with Pedro Crespo](#) - from Real Companhia Velha;
- [The soul of Port Wine](#);
- [Benefits of wine, when consumed in moderation](#);
- [Curiosities about this product that is unique in the world](#);
- [Website](#) that includes all the results identified above, as well as a historical overview of this product and a presentation of the potential markets to be developed.

Research limitations: As this project was developed during the last semester of the academic year, it has not yet been widely disseminated to audiences outside ISAG, both nationally and internationally. Consequently, it is not yet possible to measure its impact. Furthermore, only two interviews were carried out. More interviews could be carried out in order to gather the opinion of other experts on the emerging markets for Port Wine.

Originality: This project combines expertise on three scientific areas: management, multimedia, and modern languages. It enabled students to consider the concept of “cultural heritage” in order to interrogate the possibility of devising new market opportunities for a Portuguese product deeply intertwined with Portuguese history and the country’s economic fabric. Furthermore, the project enabled students to understand the importance of preserving cultural memory and traditional habits while simultaneously celebrating moderation and healthy lifestyles.

From the students' point of view, this kind of interdisciplinary project is essential to involve both students and teachers in a challenge that goes beyond the boundaries of theory and practice to engage with the world of business as it is, was and can be.

Being a part of this project provided the students with a wide range of ideas with business potential and it increased their knowledge on the internationalization of brands. The interview with George Sandeman enabled students to understand that a brand is an ongoing project, a huge journey of changes, challenges, wins and losses, and specially a catalyst because it is all about combining resources and knowledge to bring positive change to the world.

Port Wine is an excellent example of how a brand can keep its identity, values, and growth, while bringing enjoyment, happiness, and positive change. Being a Port Wine consumer means being a part of a great story of success.

Keywords:

Port Wine; Cultural Heritage; New Markets; International Marketing; Case Study; Interdisciplinary Project

References:

- Assmann, A. (2019). The future of cultural heritage and its challenges. In T. Meireis & Gabriele Rippl (Eds.). *Cultural Sustainability: Perspectives from the Humanities and Social Sciences* (pp. 25-35). Routledge.
- Kumar, T., Malabar, S., Benyo, A., and Amal, B. K. (2021). Analyzing multimedia tools and language teaching. *Linguistics and Culture Review*, 5(S1), 331-341. <https://doi.org/10.21744/lingcure.v5nS1.1400>.
- Le, H.T.P.M., Ren, T. and Park, J. (2023). The role of parent brand creating loyalty and acceptance toward premium extended wine brand: a cross-national study. *International Journal of Wine Business Research*, Vol. 35 No. 4, 538-560. <https://doi.org/10.1108/IJWBR-11-2022-0043>.
- Meireis, T. & Rippl, G. (2019). *Cultural Sustainability: Perspectives from the Humanities and Social Sciences*. (T. Meireis & G Rippl, Eds.). Routledge.
- Yao, Y., Wang, P., Xia, X., Li, X., and Song, C. (2021). The Application of Multimedia Technology in Teaching Innovation. *ASTM International. J. Test. Eval.*, 49(4): 2295–2303. <https://doi.org/10.1520/JTE20200232>.
- Yuejue Y., Xinze S., Bingyue, L., and Xiaoyuan, W. (2021). Construct a Teaching System Combining Image Linguistics and Multimedia Technology, *Wireless Communications and Mobile Computing*, vol. 2021, Article ID 6699010, 11 pages. <https://doi.org/10.1155/2021/6699010>.

SPA's Brand and Happy Experience and the Importance of Consumer Health Care

Paula Rodrigues. Universidade Lusíada and COMEGI, Portugal.
pcristinalopesrodrigues@gmail.com

Ana Pinto Borges. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC); IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal.
anaborges@isag.pt

Abstract

Purpose: The aims of this study are twofold: (1) To investigate a theoretical model elucidating the impact of consumer happiness and serenity through SPA brand experience and health care, encompassing health consciousness and knowledge. (2) To analyze whether the satisfaction derived from the experience mediates the correlation between consumer experience frequency and health care. The theoretical foundation of this study is anchored in three key areas: branding literature, consumer behavior theories, and health care research. Central to branding and consumer behavior studies are the constructs of brand image and consumer experiences. Keller (1993) brand equity model defines brand image as comprising consumers' perceptions, associations, and attitudes towards a brand. A positive brand image typically correlates with heightened customer loyalty, trust, and favorable purchase intentions. In the realm of health care, a robust brand image holds paramount importance, shaping consumer perceptions regarding the quality, reliability, and efficacy of the provided health care services Ahn, Back, & Boger, (2019). Understanding the influence of SPA brand and positive experiences on consumer health care choices holds significant importance for both health care practitioners and researchers Baloglu, Busser, & Cain, (2019). This study endeavors to bridge this gap in literature, offering valuable insights into how branding efforts and consumer experiences can shape these decisions. Additionally, it aims to contribute to a deeper comprehension of the role of emotions, particularly happiness, in health care decision-making processes Chen & Li, (2020). By exploring the connection between SPA branding, positive experiences, and consumer health care significance, this research seeks to enrich the theoretical framework Mogilner & Norton, (2019). By addressing this literature void, it promises to illuminate the impact of branding and consumer experiences on health care choices, thereby paving the way for enhanced strategies and practices within the health care industry Ali, Alam, & Ali, 2021; Nutbeam, McGill, & Premkumar, (2018). This study has five hypotheses in the theoretical model.

Methodology: Empirical data from 207 recent SPA consumers in Portugal were utilized to operationalize the research. A conceptual model was constructed and assessed through partial least squares structural equation modeling. To examine the proposed hypotheses, we utilized a partial least squares structural equation modeling (PLS-SEM) approach, employing Smart PLS 3 software Ringle, Wende, & Becker, (2015) methodological selection is consistent with prior studies Hair, Risher, Sarstedt, & Ringle, (2019) and is preferred over covariance-based SEM Hair et al., (2019) due to its ability to reconcile confirmatory and predictive research Sarstedt, Hair Jr, Cheah, Becker, & Ringle, (2019). A web-based, self-administered survey was conducted over three months from October to December 2023 in Portugal to test the hypotheses outlined in

the conceptual model. Participants were recruited through convenience sampling of master's degree students using a snowballing technique, primarily through email and social media platforms like Facebook and Instagram. The variables within the conceptual model were assessed using scales that had been previously validated and endorsed by other researchers.

Results: Our results reveal R^2 values ranging from moderate ($R^2 = 0.32$ for happiness with the experience) to substantial ($R^2 = 0.66$ for health consciousness and $R^2 = 0.65$ for health knowledge) levels. All hypotheses are affirmed by the findings. H1 is supported, as the frequency of SPA experiences demonstrates a significant positive impact on happiness with the SPA experience (path coefficient $[\beta] = 0.175$; $p < 0.05$). H2 and H3 are also corroborated, as happiness with the SPA experience significantly influences both health consciousness (path coefficient $[\beta] = 0.176$; $p < 0.05$) and health knowledge (path coefficient $[\beta] = 0.215$; $p < 0.05$). Additionally, support is found for H4 and H5, as significant positive relationships are observed between experience SPA calmness and both health consciousness ($\beta = 0.235$; $p < 0.001$) and health knowledge ($\beta = 0.156$; $p < 0.1$).

Research limitations: Limitations for this research are several. The use of convenience sampling, particularly among master's degree students, may introduce bias and limit the generalizability of the findings to other demographic groups or regions. Reliance on self-administered surveys for data collection may be susceptible to response bias and social desirability effects, potentially affecting the accuracy of the results. The study may not have accounted for all possible confounding variables that could influence the relationships between SPA experiences, emotions, and health consciousness/knowledge, potentially affecting the validity of the results.

Originality: This study bridges the gap between branding literature, consumer behavior theories, and health care research. By integrating concepts from these diverse fields, it offers a holistic understanding of how SPA experiences influence consumer health care decisions. While previous research has explored the relationship between brand experiences and consumer behavior, this study specifically focuses on the emotional impact of SPA experiences, particularly happiness and serenity, on health consciousness and knowledge. By uncovering the mechanisms through which SPA experiences impact consumer health care choices, this research contributes to both theoretical understanding and practical implications for health care practitioners and marketers in the SPA industry. It offers actionable insights for improving branding strategies and enhancing consumer experiences to promote health-conscious behaviors.

Keywords: *Happiness 1; SPA Experience 2; Calmness 3; Health Consciousness 4; Health Knowledge 5; PLS-SEM 6.*

Acknowledgements: «This work was supported by FCT - Fundação para a Ciência e Tecnologia, I.P. by project reference <UIDB/04005/2020> and DOI identifier <10.54499/UIDB/04005/2020 (<https://doi.org/10.54499/UIDB/04005/2020>)>»

References

- Ahn, J., Back, K.-J., & Boger, C. (2019). Effects of integrated resort experience on customers' hedonic and eudaimonic well-being. *Journal of Hospitality and Tourism Research*, 43(8), 1225-1255.
- Ali, T., Alam, A., & Ali, J. (2021). Factors Affecting Consumers' Purchase Behaviour for Health and Wellness Food Products in an Emerging Market. *Global Business Review*, 22(1), 151-168.
- Baloglu, S., Busser, J., & Cain, L. (2019). Impact of experience on emotional well-being and loyalty. *Journal of Hospitality Marketing and Management*, 28(4), 427-445.
- Chen, C.-J., & Li, W.-C. (2020). A study on the hot spring leisure experience and happiness of Generation X and Generation Y in Taiwan. *Asia Pacific Journal of Tourism Research*, 25(1), 39-51. doi:10.1080/10941665.2019.1592764
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. doi:10.1108/EBR-11-2018-0203
- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *Journal of marketing*, 57(1), 1-22.
- Mogilner, C., & Norton, M. I. (2019). Preferences for experienced versus remembered happiness. *The Journal of Positive Psychology*, 14(2), 244-251. doi:10.1080/17439760.2018.1460688
- Nutbeam, D., McGill, B., & Premkumar, P. (2018). Improving health literacy in community populations: a review of progress. *Health Promotion International*, 33(5), 901-911.
- Ringle, C., Wende, S., & Becker, J. (2015). SmartPLS, 3. In: Bonningstedt.
- Sarstedt, M., Hair Jr, J. F., Cheah, J.-H., Becker, J.-M., & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal*, 27(3), 197-211.

Session – “Innovative Accounting Practices and SDG Reporting in Organizational Management”

Chair: Dulce Gomes

The reporting of SDGs in Portuguese municipalities: a longitudinal study

Verónica Ribeiro. Research Centre on Accounting and Taxation, Polytechnic University of Cávado and Ave, Portugal. veronica@ipca.pt

Sónia Monteiro. Research Centre on Accounting and Taxation, Polytechnic University of Cávado and Ave, Portugal. smonteiro@ipca.pt

Maria Rodrigues. Polytechnic University of Cávado and Ave, Portugal. maria-rdrgrs@hotmail.com

Abstract

Purpose: This study aims to analyse the reporting on the SDGs in Portuguese municipalities, in the period following the ‘Agenda 2030’ approval, assessing the quality of the reporting.

Methodology: The methodology employed was qualitative, involving the analysis of the content of 57 sustainability and related reports released between 2015 and 2023 by a total of 28 municipalities. We also adopted a quantitative approach by creating an index that measures the level or quality of SDG reporting, ranging from 0 to 3, depending on the level of recognition and commitment of the municipalities to each of the 17 SDGs.

Results: Of the reports published by Portuguese municipalities, sustainability reports predominate. When we assess the degree of commitment of municipalities to the SDGs, the results of the descriptive analysis reveal an average reporting level of 1.81. The reports called ‘municipal sustainability index’ are the ones with the highest levels of reporting, ranking at the maximum value - level 3. This type of report focuses exclusively on the SDGs, thus demonstrating that this is the best way for a municipality to transmit not only qualitative but also quantitative information in relation to the 17 SDGs.

Research limitations: The methodology used, content analysis, is subjective, involving value judgements during data analysis. Furthermore, the analysis carried out did not take into account the amount of information provided by the municipalities.

Originality: The study contributes to the literature by providing insights into the reporting of the SDGs in local government in Portugal, reinforcing the scarce existing literature in this field, thus responding to identified gaps in research in the area of accounting and the SDGs (Bebbington et al., 2023).

Keywords: *Sustainable Development Goals, Reporting, Content Analysis, Municipalities.*

Acknowledgements: The authors acknowledge the financial support of FCT - Foundation

1. Introduction

In 2015, the UN launched the 17 Sustainable Development Goals (SDGs) to promote a balanced and sustainable future by 2030. (United Nations, 2015). These goals aim to achieve economic, social, and environmental balance, emphasizing the critical role of effective public policies in global sustainable development (Fiksel et al., 2012). Municipalities play a crucial role as policymakers and agents of change at the local level, uniquely positioned to bridge the UN goals with local communities (Bisogno et al., 2023). SDG 11 highlights the significance of local governments in sustainable city management, (Zinkernagel et al., 2018). Local entities need to assess the impact of their sustainable practices on the SDGs, requiring the collection and reporting of data. Therefore, in line with target 12.6 of the 'Agenda 2030', organizations are encouraged to integrate sustainability information into their operational reports. Non-financial reporting has been introduced to allow organizations to disclose pertinent social and environmental information not covered in financial reports, providing a more holistic view of their performance (Atanasov, 2022). Sustainability reporting represents a significant advance in organisational communication and is usually accepted in the corporate sector (KPMG, 2020), although it remains limited in the public sector (Ribeiro & Monteiro, 2018). While some municipalities follow the GRI framework for their sustainability reporting, most develop their own reporting structures (Niemann & Hoppe, 2017). The lack of specific frameworks for local governments to communicate their progress on the SDGs (Cohen et al., 2023) leads to an information gap that affect stakeholders' interests and their need for information (Ruiz-Lozano & Tirado-Valencia et al., 2016).

The study examined sustainability reporting in Portuguese municipalities after the 2030 Agenda, in order to assess the quality of SDG reporting. It used a mixed-methods approach, including qualitative content analysis of 57 sustainability reports from 28 municipalities (2015-2023) and a quantitative index to measure SDG reporting quality on a scale of 0 to 3, to assess municipalities' commitment to the 17 SDGs.

2. Literature Review

Local governments, due to their proximity to local citizens, have a responsibility to develop policies and practices in line with the 2030 Agenda for the benefit of their communities (Almeida, 2022; Bisogno et al., 2023). The crucial role of public administration in promoting sustainable development is widely recognised. It includes policy-making, educational support to cultivate a culture of sustainability, and coordination of practical actions for the benefit of society (Fiorino, 2010).

Bebbington et al. (2023) identified a research gap in relation to the SDGs, particularly at the level of the public sector. Existing studies mainly focus on academic contexts (Fonseca & Carvalho, 2019; Loureiro et al., 2023; Monteiro et al., 2024).

The disclosure of information on the SDGs in municipalities is still an unexplored topic, but it has started to attract the interest of the academic community. Outside the European context, we highlight the studies by Joseph et al. (2021) and Sawani et al. (2023), which focus on municipalities in Malaysia.

Within the European context, we highlight the research of Meschede (2019) on local governments in Germany and the studies of Nicolò et al. (2023) and Ribeiro-García et al. (2023), focusing on Spanish local government. Nicolò et al. (2023) also extend their analysis to Italy and carry out a comparative study on the subject. Ribeiro-García et al. (2023) specifically examines the influence of gender on the online disclosure of the SDGs in the Spanish local government.

In the Portuguese public sector, we highlight the studies by Tavares (2018) and Tavares and Rodrigues (2016) on sustainability reporting. Regarding reporting specifically on the SDGs, to the best of our knowledge, there are studies in the

business context in Portugal (Fonseca & Carvalho, 2019; Monteiro et al., 2022; Loureiro et al., 2023) and in the education sector (Monteiro et al., 2023).

It is important to align municipal strategies and institutional reporting with the SDGs, to inform citizens and other stakeholders about the current level of commitment to the 2030 Agenda, and to report on municipalities' progress towards the SDGs (Niemann & Hoppe, 2017).

3. Methodology

The study initially considered the entire population of the 308 Portuguese municipalities, based on the Financial Yearbook of Portuguese Municipalities (2021). The sample was defined after checking the municipalities with online sustainability reports post-2015 (2030 agenda launch) until 2023. The final sample includes 57 reports from 28 municipalities.

The first stage of the study aimed to verify whether municipalities disclose or not the SDGs, and to identify which SDGs were considered a priority. Content analysis technique was used to qualitatively code information on the SDGs into predefined categories (Krippendorff, 2018).

The next stage of the study was to determine the level of reporting on the SDGs. In contrast to the methodology of Haywood & Boihang (2020), this study did not analyse the SDGs as a whole, but instead assigned ratings to municipalities based on their level of commitment to each of the 17 SDGs, ranging from 0 to 3 - Level 0: No mention of the SDGs, score 0; Level 1: Mention of the SDGs but no description of specific actions or performance indicators, score 1; Level 2: Qualitative description of the SDGs without quantitative data, score 2; Level 3: Integration of the SDGs into the business strategy, quantitative reporting and high commitment, maximum score 3. An index was created to measure the level or quality of reporting, based on the formula below (Table 1).

Table 1: Level of disclosure index.

	Nivel j	SDG reporting level - total value for municipality j.
	ODS _n	SDG i under analysis. Variable that ranges from 0 to 3

$NIVEL_j = \sum_{n=1}^i ODS_n / i$	i	Maximum number of SDG (17)

Source: Own elaboration

4. Results

After analysing the websites of the 28 municipalities in the sample, we found that not all of them published this type of report on a regular basis during the period analysed. A total of 57 valid documents were collected for analysis (Table 2).

Table II: Reports collected per year.

Ano	Nº de relatórios	(%)
2015	2	3,5
2016	6	10,53
2017	9	15,79
2018	5	8,77
2019	9	15,79
2020	8	14,04
2021	6	10,53
2022	9	15,79
2023	3	5,26
Total	57	100,0

Source: Own elaboration

Sustainability reports dominate with 42.1% of the sample, followed by municipal sustainability indices with 38.6% of the analysed reports.

Regarding the framework/reference used to prepare reports, we observe that municipalities follow three approaches: they do not use a standardised framework/reference, they use the GRI framework, or they follow the CESOP-Local structure, with an approximate number of reports.

Concerning the SDGs prioritised by the municipalities, we find that only three municipalities - Porto, Cascais and Matosinhos - do so. The common priority SDGs for these three municipalities are SDG 1 (poverty eradication), SDG 3 (health and well-being), and SDG 4 (quality education).

We analysed the commitment of municipalities to the SDGs by calculating the level of reporting according to the methodology described above (Table 3).

Table III: Level of SDG reporting (2015-2023): descriptive statistics.

Level of disclosure	Nº observations	Mínimum	Maximum	Average
Level _{ODS} 2015	2	0	0	0
Level _{ODS} 2016	6	0	2	0.3333
Level _{ODS} 2017	9	0	2.6471	0.4837
Level _{ODS} 2018	5	0	3	1.5412
Level _{ODS} 2019	9	0	2.0588	2.7582
Level _{ODS} 2020	8	0	3	2.4118
Level _{ODS} 2021	6	0	3	2.8235
Level _{ODS} 2022	9	0	3	2.4902
Level _{ODS} 2023	3	0	3	2.9412
Level _{ODS} _ 2015-2023	57	0	3	1.8142

Source: Own elaboration

On average, the level or quality of reporting by municipalities is close to 2 (average = 1.81). In general, municipalities approach the SDGs in a predominantly qualitative way, describing their commitments and plans without presenting quantitative data. The focus is on explaining how these goals align with local priorities, without using quantitative indicators or evidence of the direct and indirect impacts of the municipalities. In 2015, there were no references (score 0), but from 2020 (post-pandemic period) some municipalities showed a higher level of reporting. In the pre-pandemic period, the average level of reporting increases, reaching around 2.76 in 2019, indicating a greater commitment of Portuguese municipalities to the SDGs. In 2020 and 2022, there is a decrease in the level of reporting compared to the previous year.

We also analysed the average level of reporting per year and per type of report and found that, despite the predominance of 'sustainability reports', they have a lower average level of reporting on the SDGs, around 0.51.

The "sustainability and social responsibility reports", on the other hand, address the SDGs in a predominantly qualitative way. On the other hand, the "municipal sustainability indexes" have the highest level of reporting, reaching the maximum value of level 3. These reports focus exclusively on the SDGs, providing both qualitative and quantitative information on the 17 SDGs.

5. Discussion

Until 2017, there was an increase in sustainability disclosure, possibly due to the recent emergence of the 'Agenda 2030', which sparked municipalities' interest in responding to stakeholder pressure. In 2018, there was a sharp decline of disclosure for no apparent reason. In 2019, the number of published reports returned to the level of 2017, but gradually decreased in the following years, probably due to the pandemic crisis and war and their impact on society. In 2022, with the reduction of the pandemic effects, the number of published reports increased again.

Sustainability reports publication results are in line with the literature that highlights sustainability reports as the main choice of organisations to demonstrate their commitment to the 2030 Agenda (Datta & Goyal, 2022), and is also observed in Portugal (Loureiro et al., 2023; Monteiro et al., 2022), showing a similar trend in the local public sector. In recent years, the publication of sustainability reports by Portuguese municipalities has decreased, while the number of reports, called municipal sustainability indices, has increased. This can be explained by the focus of these reports on local authorities, which provide specific information on the SDGs.

The literature review on the performance of municipalities in relation to the 2030 Agenda is limited, and there is no consensus on which SDGs are priorities for the local sector. Therefore, it is prudent to state that municipalities have different priorities regarding the SDGs, which may be influenced by local community characteristics and available financial resources (Bisogno et al., 2023).

In 2020 and 2022, there is a decrease in the level of reporting compared to the previous year due to the outbreak of the covid pandemic and the war in Ukraine, respectively.

Municipalities appear to be aware of the SDGs, but do not report on specific actions to implement them or performance indicators to achieve the goals. Most of these reports do not provide information on the SDGs, or if they do, it is in a qualitative way, resulting in a reporting level of less than 1. This shows that this type of report does not yet link sustainability information to the SDGs.

Portuguese municipalities are committed to advancing the United Nations Sustainable Development Goals (SDGs) of the 2030 Agenda. SDG reports support organisations in planning, implementing and disseminating their actions in line with the 2030 Agenda. Target 12.6 encourages the inclusion of sustainability data in these reports, yet there is a gap in the empirical literature on SDG reporting in the local public sector.

The quality of SDG reporting by local governments has increased over the years, with declines during economically challenging periods. It is recommended that regulators implement policies to strengthen SDG accountability in local governments, suggesting the adoption of frameworks such as GRI or CESOP_Local.

6. Conclusion

Portuguese municipalities are committed to advancing the United Nations Sustainable Development Goals (SDGs) of the 'Agenda 2030'. SDG reports support organisations in planning, implementing, and disseminating their actions in line with the 'Agenda 2030'. Target 12.6 encourages the inclusion of sustainability data in these reports, yet there is a gap in the empirical literature on SDG reporting in the local public sector.

The quality of SDG reporting by local governments has increased over the years, with declines during economically challenging periods. It is recommended that regulators implement policies to strengthen SDG accountability in local governments, suggesting the adoption of frameworks such as GRI or CESOP_Local. This study has limitations, such as a limited sample of municipalities. It is suggested that the study be replicated with a larger sample and diversified research methods for more comprehensive and comparative analyses. Investigating the evolution of SDG implementation over time, and the reasons for the lack of disclosure in certain municipalities, are areas of interest for future research.

References

- Atanasov, A. (2022). Current trends in European sustainability reporting legislation. *Известия на Съюза на учените-Варна. Серия Икономически науки*, 11(2), 77-89.
- Bisogno, M., Cuadrado-Ballesteros, B., Manes-Rossi, F. & Peña-Miguel, N. (2023). Sustainable development goals in public administrations: Enabling conditions in local governments. *International Review of Administrative Sciences*, 89(4), 1223-1242.
- Cohen, S., Manes Rossi, F. & Brusca, I. (2023). Are SDGs being translated into accounting terms? Evidence from European cities, *Public Money & Management*, 43(7), 669-678
- Fiksel, J. R., Eason, T., & Frederickson, H. (2012). A framework for sustainability indicators at EPA. National Risk Management Research Laboratory
- Fonseca, L., & Carvalho, F. (2019). The reporting of SDGs by quality, environmental, and occupational health and safety-certified organizations. *Sustainability*, 11(20), 5797.
- Haywood, L. K., & Boihang, M. (2020). Business and the SDGs: Examining the early disclosure of the SDGs in annual reports. *Development Southern Africa*, 38(2), 175-188.
- Joseph, C., Sawani, Y., Jangu, T., Hossen, R., & Atan, P. (2021). Development of a Sustainable Development Goals Disclosure Index (SDGDi) for Malaysian Local Authorities. *IPN Journal of Research and Practice in Public Sector Accounting and Management*, 11(1), 61-79.
- Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.
- Meschede, C. (2019), Information dissemination related to the Sustainable Development Goals on German local governmental websites. *Aslib Journal of Information Management*.
- Monteiro, S., Ribeiro, V., Vilhena, E., Lemos, K., and Molho, C. (2024), Determinants of online-reporting on sustainable development goals: the case of Portuguese Higher Education Institutions, *Social Responsibility Journal*, 20 (3), 462-484.
- Monteiro, S., Ribeiro, V., Vilhena, E., Lemos, K., Molho, C. (2023), Determinants of online-reporting on sustainable development goals: the case of Portuguese Higher Education Institutions, *Social Responsibility Journal*, ahead-of-print <https://doi.org/10.1108/SRJ-01-2023-0044>
- Nicolò, G., Andrades-Peña, F., Ferrullo, D., & Martinez-Martinez, D. (2023). Online sustainable development goals disclosure: A comparative study in Italian and Spanish local governments. *Business Ethics, the Environment & Responsibility*, 32, 1490-1505
- Niemann, L., & Hoppe, T. (2017). Sustainability reporting by local governments: a magic tool? Lessons on use and usefulness from European pioneers. *Public management review*, 20(1), 201-223.
- Ribeiro-García, M., Aibar-Guzmán, C., & Aibar-Guzmán (2023), The 2030 Agenda in local entities: Does gender matter in reporting on the Sustainable Development Goals?. *Cities*, 141(1), 104461. <https://doi.org/10.1016/j.cities.2023.104461>.
- Ribeiro, V., & Monteiro, S. (2018). Social and environmental accounting (SEA) research in public sector: the Portuguese case. In Crowther, David, Seifi, Shahla, Wond, Tracey (Eds.), *Responsibility and Governance: The Twin Pillars of Sustainability, Series: Approaches to Global Sustainability, Markets, and Governance*, (pp. 215-

- 236). Spring Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-13-1047-8_13
- Ruiz-Lozano, M., & Tirado-Valencia, P. (2016). Do industrial companies respond to the guiding principles of the Integrated Reporting framework? A preliminary study on the first companies joined to the initiative. *Revista de Contabilidad*, 19(2), 252–260. 10.1016/j.rcsar.2016.02.001
- Sawani, Y., Joseph, C., Janggu, T., Hossen, R., & Atan, P. (2023). Content Analysis of Sustainable Development Goals Information on Malaysian City Councils'

Exploring Activity-Based Costing Adoption in Seaports: A Comparative study

Carla Campos. Universidade de Aveiro, Portugal. carla.campos@ua.pt

Jorge Martins. Universidade de Aveiro, Portugal. jorgepmartins@ua.pt

Ana Costa. Universidade de Aveiro, Portugal. accosta@ua.pt

Ana Sousa. Universidade de Aveiro, Portugal. alsousa@ua.pt

Inês Faria. Universidade de Aveiro, Portugal. inesvieirafaria@ua.pt

Abstract

Purpose: To compare the implementation of Activity-Based Costing (ABC) in various national and international seaports in their context, identifying patterns and differences in application.

Methodology: Use of a comparative methodological approach in case studies on the same subject, identifying and synthesizing similarities, differences and patterns in the adoption of ABC.

Results: The results reveal that ABC contributes to a more efficient calculation of costs, despite a significant diversity of cost factors for resources and activities that reflect the specificities and different objectives of each port player.

Research limitations: The complexity of port activities inherent in each context investigated and potential differences in regulation may influence the implementation of ABC.

Originality: This research hopes to contribute to the expansion of literature that provides stakeholders with a holistic view of the stages of implementation and main concepts of ABC in the port sector.

Keywords: *Activity-based costing; Seaports; Cost allocation; Cost drivers; Comparative study.*

Acknowledgements: This study was funded by the PRR – Plano de Recuperação e Resiliência and by the NextGenerationEU funds at University of Aveiro, through the scope of the Agenda for Business Innovation “NEXUS: Pacto de Inovação – Transição Verde e Digital para Transportes, Logística e Mobilidade” (Project nº 53 with the application C645112083-00000059).

1. Introduction

Current business development influenced by globalization and extreme levels of competition force organizations to implement advanced management systems

that guarantee competitive advantages. Accurate assessment of the cost structure should provide policies that promote appropriate pricing and identify possible price reductions (Gupta & Galloway, 2003; Krishnan et al., 2002; Martins et al., 2013).

Elyass et al. (2022) highlight the statistically significant relationship between the implementation of contemporary cost accounting systems and effective planning in seaports. In the same vein, Hossain et al. (2021) and Strupp (2016) draw attention to the importance of these systems, which are decisive in the port sector, making it economically viable to move cargo on a large scale, thus promoting economic interconnection between the various regions and contributing to socio-economic development.

Indeed, even in the face of the global economic slowdown caused by the COVID-19 pandemic, maritime transport in 2023 handled approximately 80% of global trade (United Nations Conference on Trade and Development, 2023).

2. Literature Review

In the 1980s, the relative increase in indirect costs compared to other direct cost factors led to the need to obtain more accurate cost information, and the Activity-Based Costing (ABC) system was developed as an alternative to the so-called traditional systems. (Cooper & Kaplan, 1988). The central emphasis of ABC is based on the conviction that activities consume resources which are then allocated to cost objects according to the respective consumption of those activities (Cooper & Kaplan, 1988; Stapleton et al., 2004).

ABC is applied to various public and private sectors. Studies have shown that this practice is applied across the board and beyond industry (Hada et al., 2014; Lin, 2012; Vazakidis et al., 2010). They therefore demonstrate its versatility and added value in different business contexts.

Although ABC was referred to at the time by Baykasoğlu and Kaplanoğlu (2008) as being little used in the service sectors, especially in logistics, there has been a significant increase in studies in this area in recent years (Elyass et al., 2022;

Martins et al., 2013; Mthembu & Chasomeris, 2023; Pehlivan & Çiçek, 2023; Ryu et al., 2011) .

Several authors recognize the versatility and vast potential of ABC as a useful tool for creating multifaceted benefits in the port sector (Elyass et al., 2022; Hossain et al., 2021; Strupp, 2016). ABC presents itself as a versatile tool with the vast potential to provide multifaceted benefits to the port sector. Its many advantages include the ability to accurately allocate costs associated with a vision that is more focused on maximizing operational efficiency, allowing for effective cost reductions (Ryu et al., 2011; Themido et al., 2000), and a more strategic vision to support decision-making (Themido et al., 2000), especially when it comes to setting port tariffs (Elyass et al., 2022; Martins et al., 2013; Mthembu & Chasomeris, 2023; Ryu et al., 2011).

3. Methodology

Given the objective set for this study, to compare the implementation of ABC in different seaports in various countries, a comparative methodological approach was adopted.

Goedegebuure and Van Vught (1996) characterized comparative methodology as a method of analysis that focuses on different objects of study to identify similarities and differences. There are various types of comparative research, including single-country studies, overlaps, thematic comparisons and causal explanations (Kogan, 1996).

Comparative case studies involve analyzing and synthesizing the similarities, differences, and patterns between two or more cases that share a common focus or objective, and understanding each case is important for establishing the basis used in comparing the cases (Goodrick, 2014). Table I below shows the main characteristics and geographical contexts of the articles selected for comparison.

Table 1¹: Summary of the key characteristics of the studies

Author(s) (Year): Title	Objective(s) of the study	Country
Themido et al. (2000): Logistic costs case study - an ABC approach	Determining the cost of a logistics operator's service for a client in Portugal	Portugal
Luo et al. (2009): Application of ABC for the cost management in container terminal	Propose a cost management model for container terminals based on the operational processes, using ABC, with the aim of verifying its applicability and potential benefits.	China
Ryu et al. (2011): A Study on the Cost Analysis for the Container Terminal Services based on ABC Approach	Suggest the ABC approach to cost analysis and recognize its importance in container terminal services.	South Korea
Martins et al. (2013): Price regulation and cost accounting: The case of the Portuguese seaport sector	To define a method to be applied in Portuguese port administrations, to justify the tariffs to be charged for a variety of services	Portugal
Sarihan and Marşap (2019): Costing Logistics Activities of Logistics Service Companies: A Case Study and a Model Proposal	The purpose of this case study is to elucidate how logistic costs are integrated into production costs, focusing on improving costing methods for logistics companies, with a particular emphasis on port companies.	Turkey
Elyass et al. (2022): The role of contemporary cost accounting systems in planning, decision-making and controlling, in sudanese sea port corporation	Recognize, identify, study and clarify the modern methods of accounting of contemporary costs, their strengths and weaknesses, implementation policies and benefits.	Sudan
Pehlivan and Çiçek (2023): Simulation-Based Cost Evaluation of Maritime Transportation	Examine the cost structure of ship management using ABC with the aid of a simulation	Turkey; Italy

Source: Own Elaboration

4. Results and Discussion

In order to identify general patterns and insights that stand out in the particularities and unique aspects of each article, we have chosen to follow a broader and more generalized approach to the analysis of ABC implementation, making it possible to bring together most of the contributions based on common stages of implementation.

The need for research based on a more detailed analysis of the stages of the ABC method (Pehlivan & Çiçek, 2023) is emphasized, a crucial factor that improves the quality of research in this area, to which this study aims to contribute.

Stage 1: Determination of cost objects

The importance of detailed pre-knowledge of the entity (e.g. organizational structure, number of employees, constitution of departments) is evident prior to this stage (Pehlivan & Çiçek, 2023).

Cost objects are any identifiable unit about which it is intended to know and control its cost within the entity, in any form, be it products, services, projects, activities, operations and departments, among others.

¹ The selected scientific articles are presented in ascending chronological order of publication.

Ryu et al. (2011) calculated the cost of products/services, while Luo et al. (2009) selected services, movements and customers as cost objects, both for container terminals. Pehlivan and Çiçek (2023) analyzed the cost of journeys, and Sarihan and Marşap (2019) addressed the general services of each activity. Martins et al. (2013) focused their study on the definition of port tariffs, considering operational activities essential to the use of the port, pilotage, towing, mooring and unmooring, cargo and passenger handling, storage, use of equipment and supply. For their part, Themido et al. (2000) chose to group the cost objects into two distinct sets: one related to the products processed in the warehouse and the other associated with physical distribution services.

Despite their different focuses, the studies consider the services provided by port entities to be the main cost object, and are concerned, in a holistic way, with identifying and categorizing the services provided to understand the costs associated with each activity.

Stage 2: Classification of costs

Operating costs can initially be divided into two categories: attributable and non-attributable. The former, such as impairment losses or reductions in fair value and provisions, are treated as costs for the period, while the latter, generally comprising costs associated with raw materials, external services, staff costs and depreciation, are initially grouped in an operating account and then segmented into direct and indirect costs (Martins et al., 2013).

The problem implicit in this method is the apportionment of indirect costs to the final cost objects, especially since they are often fixed and shared by several services, and do not vary in the short term with the level of activity of the service under analysis (Martins et al., 2013). Faced with these challenges, it is important to identify the type of information you want to obtain, on a regular basis, in the appropriate format to feed the corresponding data system (Themido et al., 2000).

Furthermore, reclassifying financial accounting costs into direct and indirect costs is not a procedure without its difficulties. For example, the depreciation of a pier can be considered a direct cost for the port use service, but only partially an indirect cost for the mooring and unmooring service (Martins et al., 2013). This

example, in which the authors admit that the depreciation of infrastructure assets is the most significant cost incurred by seaports in general, does not dispense with proper consideration of various possibilities.

However, the most significant indirect cost elements identified in other studies include general costs (Themido et al., 2000), fuel consumption (Sarihan & Marşap, 2019), personnel costs (Pehlivan & Çiçek, 2023), maintenance and repair (Luo et al., 2009) and terminal rental (Ryu et al., 2011).

Stage 3: Defining activity centers

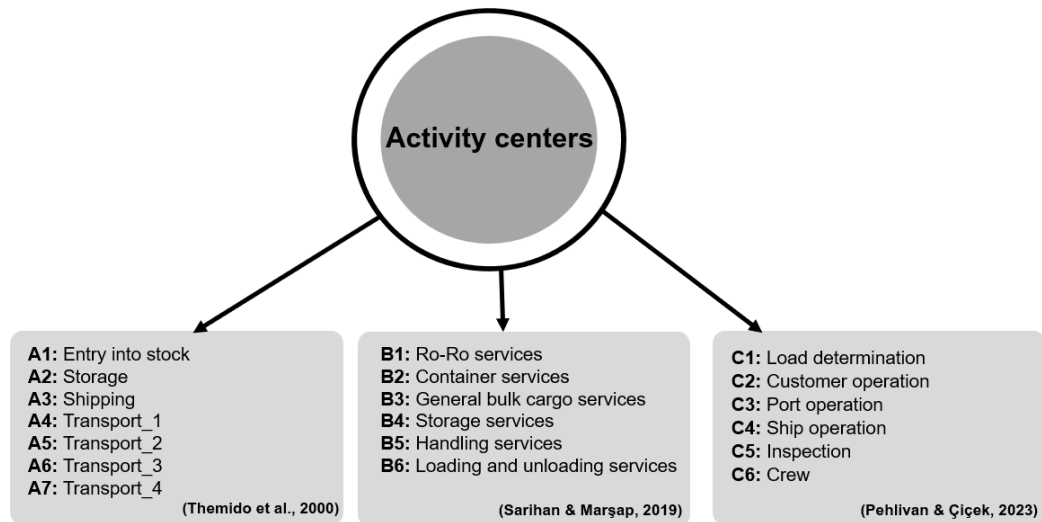
This stage consists of establishing the specific activities by identifying the corresponding activity centers. This is a challenging and time-consuming step, but it allows for a more accurate allocation of costs to activities (Sarihan & Marşap, 2019).

An approach that simplifies this process involves focusing on the main activities that have the greatest impact on the cost structure and daily operations, avoiding the excessive subdivision of activities, which generally burdens the complex processing of information (Themido et al., 2000).

In highly competitive economic contexts to meet the diverse needs of customers and subject to cost pressure, players are faced with issues related to the efficient and productive management of operational and theoretical activities, and the use of ABC can lead to the development of new services and differentiate those that appear to be standardized (Ryu et al., 2011; Sarihan & Marşap, 2019).

Sometimes, due to the complexity and need for various resources, some activities remain invisible. This is why ABC makes it possible to transform these unnoticed activities into tangible ones (Ryu et al., 2011), which is achieved by identifying and incorporating the costs incurred into cost objects (Elyass et al., 2022). The following diagram shows examples of activity centers.

Figure 1. Examples of activity centers



Source: Own Elaboration using data from Pehlivan and Çiçek (2023), Sarihan and Marşap (2019) and Themido et al. (2000)

One possible similarity between the various activity centers lies in the fact that they are all related to port and logistics activities and involve the processes of handling, storing, transporting and loading and unloading ships. These activities are essential for the efficient and safe operation of ports, regardless of the specificities of each study or location.

Stage 4: Identification of resource cost drivers and allocation to activity centers

Each activity requires the efficient and effective allocation of resources to achieve objectives related to operability, a high level of service and excellent customer satisfaction ratings, measured in terms of quantity and quality (Luo et al., 2009).

The resources allocated to each activity center can include manpower, equipment, energy, maintenance and repair, among others (Luo et al., 2009). To carry out this allocation, resource cost drivers are used to help us understand how costs are distributed according to the consumption of activities (Elyass et al., 2022) and thus determine whether they add value or not.

Illustrating and correlating the cost drivers defined for the activity centers presented in Figure 1 above by Pehlivan and Çiçek (2023), we have drawn up the following matrix:

Table II: Summary of resources, cost drivers, and corresponding activity centers

Costs	Drivers	Activity Centers					
		C1	C2	C3	C4	C5	C6
General office and telecommunications expenses	N. ° of people	X	X	X	X	X	X
Freight and postal charges	Vol. of shipments		X				
Camera costs and charges	N° of ships				X		
Bank expenses	Vol. of shipments	X	X	X	X	X	X
Gross salary and meal allowance	N. ° of people	X	X	X	X	X	X
Rental costs	M ²	X	X	X	X	X	X
Accounting expenses	N. ° of people		X		X		
Transportation costs	N. ° of cars	X	X	X	X		X
Consultancy fees	N. ° of ships				X		
Maintenance costs, insurance, fuel, and vehicle policies	N. ° of cars					X	
Notary fees	N. ° of agencies			X	X		
Representation expenses	N. ° of ships	X	X	X	X	X	X
Sailors' transportation costs	N. ° of sailors	X	X	X	X	X	X
Depreciation (office tools)	N. ° of office tools	X	X	X	X	X	X
Financial expenses	M ²	X	X	X	X	X	X

Source: Own elaboration using data from Pehlivan and Çiçek (2023)

Stage 5: Determining the unit cost of the activity centers by identifying the activity cost drivers

At this stage, the cost drivers of the activities are selected, leading to the determination of their unit cost. This choice must be easily measurable, simple to obtain and identifiable with the cost objects, as this will enable the costs of the activities to be assigned to the objects to be costed.

Following on from the logic of the activity centers shown in Figure 1, Table III was drawn up, which shows in detail the correlation between the activity centers and the cost drivers of these activities.

Table III: Correlation between Activity Centers and Activity Cost Drivers

Activity	Activity Drivers	Activity	Activity Drivers	Activity	Activity Drivers
A1	N.º of order lines processed (incoming)	B1	N.º of vehicles loaded on board	C1	Emails
A2	M^2	B2	N.º of containers	C2	Emails
A3	N.º of order lines processed (outgoing)	B3	Qty of goods	C3	Emails
A4	N.º of deliveries to the Center region	B4	M^2	C4	Emails
A5	N.º of orders delivered to the B.A. and ALG region	B5	Goods handling costs	C5	Emails
A6	N.º of orders delivered to the T.M. & B.I. region	B6	Qty of goods	C6	Emails
A7	N.º of orders delivered to the Alto Minho region				

Source: Own elaboration using data from Pehlivan and Çiçek (2023), Sarihan and Marşap (2019) and Themido et al. (2000)

Stage 6: Assigning costs to cost objects

This last stage distributes the costs of the activities among the cost objects according to their consumption and allocates the direct costs. This information is vital in that, when it comes to determining costs and profitability margins, it meets the expectations of the various stakeholders (shareholders, regulators, owners of the cargo being transported, among others).

With regard to the expectations generated by the owners of the cargo being transported, who are looking for profitable ways of transporting their goods, they want the implementation of these models, such as ABC, to boost the entities responsible for port management and encourage the implementation of strategic and sustainable financial management systems, in which it can be guaranteed that the costs involved in maritime transport are controlled and optimized, thus enabling the implementation of more efficient and profitable practices for all parties involved (Pehlivan & Çiçek, 2023).

The research conducted by Pehlivan and Çiçek (2023) stands out from the rest by comparing the total values of cost objects when using the traditional method or ABC, concluding that the use of ABC results in a lower cost per trip when compared to the traditional method.

At this stage, detailed information is obtained on all the costs of activities and their respective cost objects, the data from which can be used for more efficient

cost management and strategic port planning, thus demonstrating the potential of this method in the areas of resource optimization and financial control (Elyass et al., 2022).

5. Conclusion

By analyzing different implementation strategies as well as different methodologies for apportioning indirect costs using various cost drivers, the study concludes that the ABC costing system is appropriate and contributes to a more efficient calculation of costs in the port sector.

At the same time, the research also highlights that ABC, when compared to the traditional method of calculating the total values of cost objects, calculates a lower cost per trip. This may be due to the refinement of costing, an advantage that ABC has shown in several studies.

Especially with regard to defining activities and optimizing resources, the results obtained allow us to prescribe that seaport administrations should prioritize a collaborative approach, fostering the commitment of leadership or top management, promoting collaboration between departments.

Through strategic management accounting tools such as ABC, ports are invited to improve their cost management practices, consolidating and extending their competitive advantage in the dynamic and complex landscape of the maritime industry.

This research, by providing a holistic view of seaports that are starting or perfecting the implementation of this method, helps to understand that the adoption of ABC, by adjusting strategies to their specific contexts, can optimize the allocation of resources and identify activities that add value or not. As a limitation, it is recognized that the scope of the analysis may not have captured all the relevant specific factors that influence the implementation of ABC in this specific context.

As a future avenue, it might be interesting to investigate the implementation of ABC and/or its interconnection with other management accounting practices.

References

- Baykasoğlu, A., & Kaplanoğlu, V. (2008). Application of activity-based costing to a land transportation company: A case study. *International Journal of Production Economics*, 116, 308–324. <https://doi.org/10.1016/j.ijpe.2008.08.049>
- Cooper, R., & Kaplan, R. S. (1988). Measure costs right: make the right decisions. *Measure Costs Right: Make the Right Decisions*, 66(5), 96–103.
- Elyass, M. A., Elshareef, A. M., & Abdullah, Y. A. G. S. (2022). The role of contemporary cost accounting systems in planning, decision-making and controlling, in sudanese sea port corporation. *Journal of Science & Technology*, 3(1), 1–20.
- Goedegebuure, L., & Van Vught, F. (1996). *Comparative higher education studies: The perspective from the policy sciences* (Vol. 32, pp. 371–394). Kluwer Academic Publishers.
- Goodrick, D. (2014). Comparative Case Studies. In *Methodological Briefs: Impact Evaluation* 9. UNICEF Office of Research. www.unicef-irc.org
- Gupta, M., & Galloway, K. (2003). Activity-based costing/management and its implications for operations management. *Technovation*, 23, 131–138. [https://doi.org/10.1016/S0166-4972\(01\)00093-1](https://doi.org/10.1016/S0166-4972(01)00093-1)
- Hada, M. S., Chakravarty, A., & Mukherjee, P. (2014). Activity based costing of diagnostic procedures at a nuclear medicine center of a tertiary care hospital. *Indian Journal of Nuclear Medicine*, 29(4), 241–245. <https://doi.org/10.4103/0972-3919.142627>
- Hossain, T., Adams, M., & Walker, T. R. (2021). Role of sustainability in global seaports. *Ocean and Coastal Management*, 202, 105435. <https://doi.org/10.1016/j.ocecoaman.2020.105435>
- Kogan, M. (1996). *Comparing higher education systems* (Vol. 32, pp. 395–402). Kluwer Academic Publishers.
- Krishnan, R., Luft, J. L., & Shields, M. D. (2002). Competition and Cost Accounting: Adapting to Changing Markets. *Contemporary Accounting Research*, 19(2), 271–302. <https://doi.org/10.1506/L3K1-7V9V-E1TH-J756>
- Lin, W. C. (2012). Financial performance and customer service: An examination using activity-based costing of 38 international airlines. *Journal of Air Transport Management*, 19, 13–15. <https://doi.org/10.1016/j.jairtraman.2011.12.002>
- Luo, J. X., Ma, Z., Fan, T., Yang, J., & Hu, Y. (2009). Application of ABC for the cost management in container terminal. *2009 International Conference on Information Management, Innovation Management and Industrial Engineering, ICIII 2009*, 3, 349–352. <https://doi.org/10.1109/ICIII.2009.393>
- Martins, A., Jorge, S., & Sá, P. (2013). Price regulation and cost accounting: The case of the Portuguese seaport sector. *International Journal of Law and Management*, 55(6), 444–463. <https://doi.org/10.1108/IJLMA-08-2012-0030>
- Mthembu, S. E., & Chasomeris, M. (2023). Revisiting marine services pricing in South Africa's ports. *WMU Journal of Maritime Affairs*, 1–20. <https://doi.org/10.1007/s13437-023-00320-7>
- Pehlivan, D., & Çiçek, K. (2023). Simulation-Based Cost Evaluation of Maritime Transportation. *Journal of Eta Maritime Science*, 11(4), 270–281. <https://doi.org/10.4274/jems.2023.75875>
- Ryu, D.-H., Ahn, K.-M., & Yoon, Y.-S. (2011). A Study on the Cost Analysis for the Container Terminal Services based on ABC Approach. *Journal of Navigation and Port Research International Edition*, 35(7), 589–596. <https://doi.org/10.5394/kinpr.2011.35.7.589>
- Sarihan, A. Y., & Marşap, B. (2019). Costing Logistics Activities of Logistics Service Companies: A Case Study and a Model Proposal. *The Journal of Accounting and Finance*, 301–312. <https://doi.org/10.25095/mufad.607144>

- Stapleton, D., Pati, S., Beach, E., & Julmanichoti, P. (2004). Activity-based costing for logistics and marketing. *Business Process Management Journal*, 10(5), 584–597. <https://doi.org/10.1108/14637150410559243>
- Strupp, C. (2016). Seaports in transition. Global change and the role of seaports since the 1950s. *Planning Perspectives*, 31(1), 115–119. <https://doi.org/10.1080/02665433.2015.1038578>
- Themido, I., Arantes, A., Fernandes, C., & Guedes, A. P. (2000). Logistic costs case study - an ABC approach. *Journal of the Operational Research Society*, 51(10), 1148–1157. <https://doi.org/10.1057/palgrave.jors.2601031>
- United Nations Conference on Trade and Development. (2023). *Review of Maritime Transport 2023 - Towards a green and just transition*.
- Vazakidis, A., Karagiannis, I., & Tsialta, A. (2010). Activity-Based Costing in the Public Sector. *Journal of Social Sciences*, 6(3), 376–382. <https://www.researchgate.net/publication/49619887>

Financial Literacy: Study Concerning Students Attending a Portuguese Higher Education Institution

Maria Carlos Annes. Instituto Superior de Contabilidade e Administração de Lisboa (ISCAL-IPL). mcannes@iscal.ipl.pt

Manuel Fanico. Instituto Superior de Contabilidade e Administração de Lisboa (ISCAL-IPL). mcfanico@iscal.ipl.pt

Miguel Goncalves. Instituto Superior de Contabilidade e Administração de Lisboa (ISCAL-IPL). Imgoncalves@iscal.ipl.pt

Teucle Marinelli Filho. Universidade Paulista. teucle.mannarelli@unesp.br

Adriano Lucente. Universidade Paulista. adriano.lucente@unesp.br

Abstract

Purpose: The purpose of the study is to investigate the impact of financial literacy on economic and social well-being. It emphasizes the importance of understanding how financial literacy, or the lack of it, affects the quality of life of individuals in society and subsequently impacts economies at a macro level.

Methodology: The study utilized a mixed-method approach, incorporating both quantitative and qualitative methods through a questionnaire survey. The questionnaire was distributed via Microsoft Forms. Responses from 258 individuals in mainland Portugal were collected using Likert scale ratings to evaluate knowledge and attitudes toward financial literacy.

Results: The questionnaire results indicate a good level of financial literacy among the population evaluated. Therefore, while the respondents appear well-informed, this may not reflect the general population, as factors like family environment and course structures also significantly influence financial literacy.

Originality: The article is part of a joint work between Portugal and Brazil and is constantly evolving as a result of data that is being incorporated from each country and which will result in work with joint results. Furthermore, our proposal includes a qualitative analysis of the data, a methodology still little used that could bring new.

Keywords: *Financial, Literacy.*

Acknowledgements: IPL/IDI&CA2023/LFBP2023_ISCAL

1. Introduction

The topic has aroused growing interest in the scientific community in recent years largely due to the fact that it has become aware of the real importance of financial literacy in the lives of people in societies and the impacts that result from it on the quality of life of people in society and the impact this causes on countries' economies. However, despite the research that has been carried out, there is still no complete knowledge of how financial literacy, or the lack thereof, actually affects economic and social well-being. The objective of this investigation is to study, analyze and seek answers regarding this topic.

Various measures can be taken to promote financial literacy. One of the most effective ways to promote it is through education. Classes and/or subjects can be introduced in schools with the aim of teaching students about elements of personal and family management such as budgeting, economics, investments, liquidity and salary management, among other topics related to personal finances. Additionally, students can be encouraged to participate in clubs such as Junior Achievement, which provide practical experience on how to manage money and create a financially secure situation. There are also other ways to promote financial literacy, such as learning in a work context, carrying out awareness and education campaigns, legislative measures, advertising and family education.

As a consequence of the subprime financial crisis, which originated in the United States, Boeri and Guiso (2007) understand that people and institutions have become aware of this issue. As a result of this new reality Almeida et al. (2015) highlighted the urgent need to improve people's financial education. We can say that a new era has been created, in which levels of concern worldwide have increased substantially in relation to levels of financial education and training.

The economic and financial crises, as well as the growing development of banking and insurance activities and the constant pressure from consumer marketing, led the governments of different countries to include education and financial literacy as a fundamental point of their programs. In general, financial literacy is characterized as the ability to read, analyze, manage and communicate

the various financial problems that arise daily in terms of the material well-being of people and families. It is also considered as gaining knowledge about market principles, instruments, organizations and their regulation and the competence and ability to use the knowledge acquired in the financial area.

Financial literacy has two dimensions Huston (2010), the understanding that brings together knowledge of personal finances and the use that refers to the application of personal finances. Literacy is not the same as financial knowledge since financial literacy implies the ability to make financial decisions with the knowledge one possesses, it also states that financial education will be the ability of an individual to understand financial information linked to operational transactions.

Referencing three dimensions of information, Abreu and Mendes (2010) identify as preponderant in the degree of financial literacy, the financial knowledge revealed in the answers to concrete questions about the financial market, school training, due to its positive influence on the development of the ability to manage various sources of information and access to and choice of sources of information used for decision-making.

Our study aims to explore the level of financial literacy in undergraduate students at higher education institutions in Portugal in areas directly related to financial issues as well as in areas where this relationship does not exist and thus try to understand to what extent individual decisions are enhanced or not by a more in-depth theoretical knowledge of these issues. In addition to this introduction, the article then presents a review of the literature on the topic. Subsequently, the methodology used in the study is presented, followed by the presentation and analysis of the study results in the following section. At the end, conclusions are presented.

2. Literature Review

Since the end of the 20th century, there has been a significant increase in concern about the population's level of financial knowledge, both by researchers and governments around the world. Pioneering works, such as those by

Bernheim (1995 and 1998), laid the foundations for this line of investigation, but it was with the work of Lusardi and Mitchell (2007) that this concern intensified. The 2008 financial crisis intensified this increase in interest, leading to an exponential growth in the publication of studies on financial literacy. These investigations focus on measuring individuals' financial skills, investigating the factors that influence them and analyzing their impact on individuals' behavior in financial markets. Unfortunately, the results of these studies have been consistent in showing low levels of financial literacy in the population, regardless of the country under analysis. This is a global challenge that requires a comprehensive response, including education initiatives, public policy and awareness efforts to improve people's financial knowledge and enable them to make more informed and responsible decisions regarding their personal finances.

Studies from the international project Financial Literacy around the World (Flat World) offer a comprehensive view of financial literacy in different countries. The use of three key questions, known as the "Big Three", created by Lusardi and Mitchell (2011), offers a consistent metric to measure financial skills around the world. The results of these studies are worrying, revealing that only a minority of the adult population is able to correctly answer the three questions. Furthermore, even when people answer one or two of the questions correctly, there is still a significant gap in financial understanding in such important areas as interest rates, inflation and risk diversification. It is worth noting the differences in results between the different countries. In countries like Germany, the Netherlands, Canada and Australia the percentage of people with correct answers is relatively high, in countries like Romania, Chile and Russia, levels of financial literacy are considerably lower. Furthermore, these studies highlight the importance of disparities between different population groups, young people, the elderly, women, people with a low level of education and the unemployed are identified as particularly vulnerable groups in relation to financial issues. Highlighting the need for financial inclusion policies and programs aimed at these groups, in order to promote greater financial literacy and enable all segments of society to make more informed and prudent financial decisions.

Studies that focus on identifying the determinants of financial literacy have focused mainly on young people, using data provided by the PISA project. This approach can be observed in works such as those by Lusardi and Lopez (2016) for the United States; Riitsalu and Põder (2016) for Estonia; Molina Marfil, Marcenaro Gutiérrez and Martín Marcos (2015) and Mancebón, Ximénez-de-Embún, Mediavilla and Gomez-Sancho (2019) for Spain; and Moreno-Herrero, Salas-Velasco and Sánchez-Campillo (2018a, 2018b) for all countries participating in PISA in 2012 and 2015, respectively. In all these studies, a low level of financial skills is found among young people and common patterns are observed in relation to the factors that influence these skills. The gender of the sample emerges as a determining variable, with females consistently presenting lower levels of financial literacy. Other important variables include immigration status, the family's socioeconomic level, students' mathematical and language skills, involvement in conversations with parents about financial topics, and having a bank account and credit card. In studies that use specific databases, the relevance of the type of school attended by students, age and financial attitudes demonstrated by students was also observed.

These results provide valuable insights for the development of policies and educational programs aimed at improving young people's financial literacy by identifying the most vulnerable groups and the factors that positively or negatively influence their financial skills.

Studies focused on analyzing the determinants of financial skills in the adult population complement those that focus on young people, offering a more comprehensive view of financial literacy at different stages of life. Among the most recent studies, we find works such as those by Lusardi, Mitchell and Curto (2010), Shim et al. (2010) and Hanson and Olson (2018), for the United States; Grohmann, Kouwenberg and Menkhoff (2015) for Thailand; Skagerlund et al. (2018) for Sweden; and Mancebón and Ximénez-de-Embún (2020) for Spain. Although they use different samples and estimation methods, there are common patterns in the results obtained, which are in line with the findings of previous investigations. Conversations with family about financial issues show a positive and statistically significant effect on financial skills in several of these studies, as

well as on math skills and other measures of cognitive and emotional development.

These studies reaffirm the gap between adult men and women in terms of financial literacy, as well as the relevance of education level, professional status, age and family income level. These factors consistently appear as determinants of financial literacy in descriptive analyzes carried out by economic institutions and are corroborated by the results of these more recent studies. Together, they provide a deeper understanding of the factors that influence the financial skills of the adult population, offering valuable insights for the development of educational policies and programs aimed at improving financial literacy across all age groups.

Other studies that aim to assess the impact of financial literacy on individuals' financial behavior constitute one of the largest groups of research carried out by academics. Among the most recent studies, the works of Anderson, Brown et al (2016) stand out; Allgood and Walstad (2016); Baker and Robinson (2017); Boisclair, Lusardi and Michaud (2017); Grohmann (2018); Grohmann, Klüs and Menkhoff (2018); Hsiao and Tsai (2018); Hanson and Olson (2018); and Mancebón, Ximénez-de-Embún and Villar-Aldonza (2020). These studies generally find statistically significant effects of financial literacy on several analyzed variables, such as financial planning for old age, ownership of various financial products, attitudes towards savings and making optimal financial decisions. However, there may be some disagreement regarding the magnitude of these effects, as pointed out by Fernandes, Lynch and Netemeyer (2014) and Lusardi and Mitchell (2014). Despite divergences regarding the magnitude of the effects, these studies highlight the importance of financial literacy in promoting more conscious financial behaviors and making more informed and effective financial decisions. Highlighting the continued need for financial education policies and programs aimed at improving the financial skills of the general population in order to promote greater financial stability and economic well-being.

It is interesting to note that there are also specific studies on financial literacy in Portugal, including Abreu and Mendes (2006), who concluded that there were higher levels of LF in citizens with a higher level of education, Rosa et al. (2020) in which socioeconomic relations and literacy are established and which, despite

having improved, is still low when compared to most European countries, Rosa (2021) points to results below the average of OECD countries on the part of students and Almeida e Costa (2021) who concludes that despite the investment to promote financial literacy, it proved to be insufficient.

These studies provide important data on the state of financial literacy in Portugal and highlight the ongoing need for policies and programs aimed at improving financial knowledge and promoting greater economic stability among Portuguese citizens.

3. Methodology

Starting from the use of two methods, the quantitative method and the qualitative method using a questionnaire survey and taking into account the fact that the aim is to analyze attitudes, intentions and behaviors, but that it also aims to quantitatively delimit the results, this questionnaire is a adaptation of surveys used in several studies, namely by Banco de Portugal (2011), the National Financial Education Plan (2016, 2021), the OECD (2016a, 2020), the CFPB (2015b) and Potrich et al. (2016), and consists of 35 questions organized as follows: I. Characterization of the interviewee (questions 1 to 12); II. Financial attitude indicator (questions 13 to 17); III. Financial behavior indicator (questions 18 to 23); IV. Financial knowledge indicator (questions 24 to 29); V. Financial well-being indicator (question 30 to 35). The structure of the survey was defined based on the methodology developed by the OECD (2016a, 2020) and aims to respond to the defined objectives, namely determining the level of literacy, resilience and financial well-being. Additionally, the values present in the questions measuring financial knowledge were also changed so as not to allow students to access the correct answer through research, since online distribution does not guarantee an answer without consulting the survey. The questionnaire, before being distributed, was subjected to a pre-test by 50 students, with the purpose of flagging inaccuracies and evaluating the difficulties detected in their response. It should be noted that in groups II to V an open question was introduced, which will be subject to evaluation using the Imaruteq tool. This type of analysis is applied Camargo and Justo (2013) in studies and investigations to

quantify essentially qualitative variables, originating from a text , the software allows various types of analysis to be carried out, following an approach by Manarelli et al (2022), using textual analysis, based on open questions in the questionnaire.

This study was based on the application of a self-administered questionnaire survey using Microsoft Forms. The questionnaire was administered between March 19 and April 14, 2024. Completing the questionnaire took around 5 minutes. This questionnaire consists of two parts. Firstly, a set of questions were asked about the profile of those surveyed; secondly, a set of questions were asked about their attitude, behavior, knowledge and well-being regarding financial literacy, based on the study carried out by Fernandes, Lynch and Netemeyer (2014). To evaluate the scale of knowledge and perceptions of attitudes, a 5-point Likert scale was used (1 - Totally disagree to 5 - Totally agree). The final version of the questionnaire was pre-tested with 30 surveys. After making small semantic and language adjustments since it will be applied in Portugal and Brazil, the questionnaires were then distributed for self-completion, obtaining a non-probabilistic, convenience sample consisting of 258 individuals. It is a questionnaire with closed and open questions and was distributed in mainland Portugal.

4. Results

In terms of the characterization of the sample profile, the survey was answered by 258 people, 84 of whom were male, corresponding to 46.7%, by 94 female people, corresponding to 52.2%, and another 2 people, corresponding to 1.1%, they had an average age of 23.85 years, a minimum age of 17 and a maximum of 53. As for the higher education institution, 134 attend a public institution 74.4% and 46 attend a private institution 25.6%, in relation to the area of study 168 study in an area closely linked to these issues regarding the size of the household with a size of 3 to 5, 125 members we have 70%, 160 attend a degree 88.9%, 175 attend a degree in the financial or related area 97.2%, 93.3%, 123 people are students 68.3%, 32 people participated in the literacy program which corresponds to 17.8%.

Regarding quantitative questions, we obtained the following results for each of the groups, II, III, IV and V.

Table I – Financial Attitude

Financial Attitude	Average	Median	Mode	Standard deviation
It is important to have control over monthly expenses	4,89	5	5	0,326
It is important to create a monthly budget	4,54	5	5	0,677
When using credit solutions it is important to compare different offers	4,56	5	5	0,752
It is important to be cautious when accessing digital financial products and services (e.g. online banking)	4,52	5	5	0,678

Source: Own elaboration

It should be noted that the answers result in very positive values regarding the financial attitude of the participants, agreeing or completely agreeing with the questions related to attitude. These data suggest that, in general, financial attitudes are well evaluated, with averages close to or greater than 4 and with a significant concentration of responses in the highest category (5). The standard deviation, although relatively low, indicates some variability in responses in relation to the mean.

Table II – Financial Behavior

Financial Behavior	Average	Median	Mode	Standard deviation
I control my personal expenses	4,19	4	5	0,913
I pay my bills without delay	4,34	5	5	0,997
I usually use a credit card when I don't have money for expenses.	2,11	1	1	1,446
I make impulse purchases	2,52	3	3	1,154
Compare prices before making a purchase	4,28	5	5	0,997

Source: Own elaboration

In this case, the answers reveal risky behaviors for the health and financial stability of the participants in this survey. The data also shows a high standard deviation instead of what happened in table 1. The data shows that there is a variety of financial behaviors, with averages that vary from 2.11 to 4.34. The mode indicates a more common response trend, generally concentrated in the highest categories (4 and 5). However, the standard deviation is relatively high for some of the questions, suggesting greater variability in responses in relation to the mean. For example, the standard deviation for "I usually use a credit card when I don't have money for expenses" is particularly high, indicating a large dispersion in responses.

Table III – Financial behavior indicator

Financial behavior indicator	Average	Median	Mode	Standard deviation
It is important to have good financial knowledge!	4,85	5	5	0,419
The value of money loses purchasing power over time!	4,19	4	5	0,984
Banks pay little for your financial investment and charge a lot for loans!	4,37	5	5	0,817
The diversification of investments contributes to reducing risk!	4,1	4	5	0,995
Paying off your credit card when due and in full is the most interesting alternative	3,47	3	3	1,174

Source: Own elaboration

The data shows that, in general, participants strongly agree with the indicators presented, as indicated by means and medians close to or equal to 5. However, there is considerable variability in responses, as evidenced by the relatively high standard deviations. This suggests that there is a diversity of opinions regarding these financial indicators.

Table IV – Financial well-being

Financial Wellbeing	Average	Median	Mode	Standard deviation
In an unexpected situation I can count on the help of family and friends!	3,95	4	5	1,189
Having a stable financial life is important!	4,89	5	5	0,375
Financial balance should be a daily concern	4,51	5	5	0,759
My personal finances control my life	3,59	4	4	1,081
A good financial situation contributes to your general well-being!	4,6	5	5	0,694

Source: Own elaboration

In general, participants express strong agreement with financial well-being indicators, with averages close to or equal to 5 for most questions. However, there is considerable variability in the responses, as indicated by the relatively high standard deviations. This suggests that there is a diversity of perspectives and experiences regarding financial well-being among participants.

It appears that the results of the survey are positive, which can be attributed to the fact that the majority of participants are management or finance students. It is reasonable to expect that these students will have a greater knowledge and understanding of financial issues due to their academic background and interest in the area.

However, it is important to consider that the results may not be representative of the general population, as the participants are management or finance students, who tend to have a higher level of financial literacy than the population average. Therefore, the results may not necessarily reflect the financial literacy situation of the general population.

5. Conclusion

The results of this questionnaire for Portugal indicate that the population evaluated has a good level of financial literacy, which can be attributed to the fact

that they are more informed about these matters. This is in line with the work of Almeida e Costa (2021) and Miraj et al. (2023), who link higher levels of literacy to specific training and dedicated programs.

However, the mixed evidence presented by Bruhn et al. (2016) suggests that despite improved financial literacy, unwanted financial behaviors may occur, such as increased consumption of expensive products. This point should be considered when interpreting the results of the questionnaire, as training may not be the only determining factor for effective financial management.

The results obtained in the questionnaire reflect a population that is more informed and possibly has access to financial literacy programs, which may not be representative of the general population. It is essential to consider these variables when comparing with the existing literature, as factors such as the family environment (Ergun, 2017) and the curricular structure of the courses (Almeida and Costa, 2021; Miraj et al., 2023) play a significant role in individuals' financial literacy.

As a result of the questionnaire, there are qualitative issues that will still be analysed, through *imarutec*, which can give us new perspectives.

However, it is encouraging to see that even in an informed group, there is still room for analysis and reflection on qualitative issues. Qualitative analysis, especially with the aid of tools like *imarutec*, can provide additional insights and nuances that quantitative data alone cannot capture. This can help to contextualize and enrich quantitative results by providing a more holistic and detailed understanding of financial literacy and financial behavior.

To gain a more comprehensive understanding of financial literacy, it would be helpful to conduct studies that include a more diverse sample of the population, representing different age groups, educational levels, occupations, and socioeconomic backgrounds. This would provide a complete and more accurate picture of financial literacy and financial behavior across the population.

References

- Abreu, M. & Mendes, V. (2006) - Cultura financeira dos investidores e diversificação das carteiras. Comissão do Mercado de Valores Mobiliários. C. D. M. D. V. Mobiliários. Cadernos do Mercado de Valores Mobiliários. Lisboa: C. D. M. D. V. Mobiliários.
- Abreu, M. & Mendes, V. (2010). Financial Literacy and Portfolio Diversification. *Quantitative Finance*, 10, 515-528.
- Allgood, S., & Walstad, W. B. 2016. The effects of perceived and actual financial literacy on financial behaviors. *Economic Inquiry*, 54 (1): 675-697. Portuguesa 2010.
- Bernheim, B. D. (1995). Do Households Appreciate Their Financial Vulnerabilities? Na Analysis of Actions, Perceptions, and Public Policy. En: *Tax Policy and Economic Growth* (pp. 1-30). Washington, DC: American Council for Capital Formation.
- Bernheim, B. D. (1998). Financial illiteracy, education and retirement saving. En: O. s. MITCHELL y s. J. Schieber (Eds.), *Living with Defined Contribution Pensions* (pp. 38-68). <https://doi.org/10.1117/12.822251>
- Boisclair, D., Lusardi, A. y Michaud, P.-C. (2017). Financial literacy and retirement planning in Canada. *Journal of Pension Economics and Finance*, 16(3), pp. 277-296. <https://doi.org/10.1017/S1474747215000311>
- Bruhn, Miriam, Luciana de Souza Leão, Arianna Legovini, Rogelio Marchetti, and Bilal Zia. 2016. "The Impact of High School Financial Education: Evidence from a Large-Scale Evaluation in Brazil." *American Economic Journal: Applied Economics*, 8 (4): 256-95. **<https://doi:10.1257/app.20150149>**
- Consumer Financial Protection Bureau. (2015a). Financial Well Being: The Goal of Financial Education. January, 48.
- Ergün, Kutlu (2017). *Financial literacy among university students: A study in eight European countries*. *International Journal of Consumer Studies*, (), – . <https://doi.org/10.1111/ijcs.12408>
- Fernandes, d., Lynch, j. g. y Netemeyer, R. G. (2014). Financial Literacy, Financial Education, and Downstream Financial Behaviors. *Management Science*, 60(8), pp. 1861-1883. <https://doi.org/10.1287/mnsc.2013.1849>
- Fernando Almeida & Orlando Costa (2021): Perspectives on financial literacy in undergraduate students, *Journal of Education for Business*, <https://doi.org/10.1080/08832323.2021.2005513>
- Grohmann, A. (2018). Financial literacy and financial behavior: Evidence from the emerging Asian middle class. *Pacific-Basin Finance Journal*, 48, pp. 129-143. <https://doi.org/10.1016/j.pacfin.2018.01.007>
- Grohmann, A., Klühs, T. y Menkhoff, L. (2018). Does financial literacy improve financial inclusion? Cross country evidence. *World Development*, 111, pp. 84-96. <https://doi.org/10.1016/j.worlddev.2018.06.020>
- Grohmann, A., & Kouwenberg R., & Menkhoff, L. 2015. Childhood roots of financial literacy, *Journal of Economic Psychology*, 51: 114-133.
- Hanson, T. A. y Olson, P. M. (2018). Financial literacy and family communication patterns. *Journal of Behavioral and Experimental Finance*, 19, pp. 64-71. <https://doi.org/10.1016/j.jbef.2018.05.001>
- Hsiao, Y. J. y Tsai, W. C. (2018). Financial literacy and participation in the derivatives markets. *Journal of Banking and Finance*, 88, pp. 15-29.
- Huston, S. J. (2010). Measuring Financial Literacy. *Journal of Consumer Affairs*, 44(2), 296–316.
- Lusardi, A. y López, A. (2016). Financial Literacy among High School Students in the United States: Evidence from the 2012 Programme for International Student Assessment (PISA). European Investment Bank Institute Working Paper.
- Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business Economics*, 42(1), 35–44.

- Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: An overview. *Journal of Pension Economics and Finance*, 10(4), 497–508.
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44.
- Lusardi, A., & Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, 44 (2): 358-380
- Manarelli Filho, T. & Batista, R. & Gabriel Filho, L. (2022). A responsabilidade social empresarial nas relações do trabalho: mapeamento do uso lógica fuzzy com o software Iramuteq. *New Trends in qualitative research*
- Mancebón, M.-J. y Ximénez-de-Embún, D. P. (2020). Habilidades Financieras de la población española adulta: Diagnóstico y determinantes. *Papeles de Economía Española*, número 166, sobre Capital Humano (forthcoming).
- Mancebón, M.-J., Ximénez-de-Embún, D. P., MEDIAVILLA, M. y GÓMEZ-SANCHO, J.-M. (2019). Factors that influence the financial literacy of young Spanish consumers. *International Journal of Consumer Studies*, 43(2), pp. 227-235. <https://doi.org/10.1111/ijcs.12502>
- Miraj, J., Haider, S., Abbas, Q., Naeem, I., Nishtar, Z., & Lodhi, K. (2023). Assessing the Effectiveness of Financial Literacy Programs for Business Student. *Bulletin of Business and Economics (BBE)*, 12(3), 587-594.
- Molina Marfil, J. A., Marcenaro Gutiérrez, Ó. D. y Martín Marcos, A. (2015). Educación financiera y sistemas educativos en la OCDE: un análisis comparativo con datos PISA 2012. *Revista de Educacion*, 369, pp. 85-108. <https://doi.org/10.4438/1988-592X-RE-2015-369-291>
- Moreno-Herrero, D., Salas-Velasco, M. y Sánchez-Campillo, J. (2018a). Factors that influence the level of financial literacy among young people: The role of parental engagement and students' experiences with money matters. *Children and Youth Services Review*, 95, 334-351. <https://doi.org/10.1016/j.childyouth.2018.10.042>
- Moreno-Herrero, D., Salas-Velasco, M. y Sánchez-Campillo, J. (2018b). The Knowledge and Skills That Are Essential to Make Financial Decisions: First Results From PISA 2012. *FinanzArchiv: Public Finance Analysis*, 74(3), pp. 293-339. <https://doi.org/10.1628/fa-2018-0009>
- OCDE. (2016). OECD / INFE International survey of adult financial literacy competencies.
- OCDE. (2020). OECD/INFE 2020 International Survey of Adult Financial Literacy. 78.
- Plano Nacional de Formação Financeira. (2016). Relatório do Inquérito à Literacia Financeira da População Portuguesa 2015.
- Plano Nacional de Formação Financeira. (2021). Relatório do Inquérito à Literacia Financeira da População Portuguesa 2020.
- Potrich, A. C. G., Vieira, K. M., & Mendes-Da-Silva, W. (2016). Development of a financial literacy model for university students. *Management Research Review*, 39(3), 356–376.
- Rosa, V. (2021). O PISA e a literacia financeira: os resultados de Portugal. *Revista Portuguesa de Investigação Educacional*, 21(21), 1–20.
- Riitsalu, L. y Pöder, K. (2016). A glimpse of the complexity of factors that influence financial literacy. *International Journal of Consumer Studies*, 40(6), pp. 722-731. <https://doi.org/10.1111/ijcs.12291>
- Skagerlund, K., Lind, T., Strömbäck, C., Tinghög, G. & Västfjäll, D. (2018). Financial literacy and the role of numeracy—How individuals' attitude and affinity with numbers influence financial literacy. *Journal of Behavioral and Experimental Economics*, 74, pp. 18-25. <https://doi.org/10.1016/j.socec.2018.03.004>
- Shim, s., Barber, B. I., Card, N. A., Xiao, J. J. & Serido, J. (2010). Financial Socialization of First-year College Students: The Roles of Parents, Work, and Education. *Journal of Youth and Adolescence*, 39(12), pp. 1457-1470. <https://doi.org/10.1007/s10964-009-9432-x>

The impact of ESG Scores in Firm Valuation: Emerging markets in Eastern Europe

João Sobral do Rosário. *Instituto Superior de Contabilidade e Administração de Lisboa (ISCAL-IPL), Instituto Superior das Ciências do Trabalho e da Empresa (ISCTE-IUL), Portugal. jfrosario@iscal.ipl.pt*

Maria Carlos Annes. *Instituto Superior de Contabilidade e Administração de Lisboa (ISCAL-IPL), Portugal. mcannes@iscal.ipl.pt*

Miguel Goncalves. *Instituto Superior de Contabilidade e Administração de Lisboa (ISCAL-IPL), Portugal. Imgoncalves@iscal.ipl.pt*

Abstract

Purpose: This paper investigates if the value of the firms listed in the stock exchanges from emerging financial markets in Central and Eastern Europe is affected by CSR decisions, as measured through ESG scores over the period 2000-2022.

Methodology: This paper follows the methodology followed in previous research conducted by the authors, expanding the pool of countries being analyzed, providing a more complete picture of the impact of ESG classification in firm value in a more diverse context of financial market development. We extend the base Ohlson (1995) valuation model, including not just ESG information (the global ESG score, as well as the scores for the individual pillars, Environmental, Social and Governance), as well as including other control variables.

Results: Overall findings show that investors do not include this information in the valuation of these firms, even in Environmental Sensitive Industries, as the impact of these variables are not statistically significantly different from zero. Several robustness checks were run, and the results were confirmed. Additional research is suggested in order to determine any factors specific to this group of countries that could extract more information from the regressions.

Keywords: *Sustainability, ESG, Valuation, Listed Companies, Emerging Markets*

Acknowledgements: The authors received financial support from the grant IPL/IDI&CA2023/ESG2023_ISCAL

1. Introduction

There is a vast literature on the relevance of the value of social responsibility for companies operating in developed countries, not so much in relation to emerging markets. In this context, the aim of this study is to analyze whether the social responsibility activities carried out by companies listed on the Emerging Market Stock Exchanges located in Eastern Europe, play a significant role in increasing the value of the company. In different previous studies, we can distinguish between the three modern pillars of sustainability: environmental, social, and corporate governance (ESG). We will seek to find evidence according to the theory of increase in value rather than the theory of shareholder expenses. However, it is important to check if the results also show that the market does not significantly value the three ESG pillars. Specifically, the market positively and significantly values environmental practices carried out by companies unrelated to environmentally sensitive industries. In contrast, the market positively and significantly values social and corporate governance practices carried out by companies belonging to these industries. These findings may be relevant to investors and managers of these companies, policy-makers, customers, and citizens concerned with ESG issues.

2. Literature Review

Ortas et al. (2018) conducted a study aimed at quantifying the impact of integrating ESG (Environmental, Social, and Governance) research into investment strategies within emerging markets. Their research also explored the potential for risk diversification in these markets. Departing from traditional approaches that primarily focused on developed economies, Ortas et al. (2018) employed an institutional systems approach to investigate the influence of various national institutions on corporate ESG performance. This approach allowed them to fill a gap in existing research by examining firms in less-studied economies across Asia, Africa, Eastern Europe, the Middle East, and Latin America. Their study encompassed a diverse sample of 4,751 companies across 52 countries and employed a multilevel model to analyze the data. Through their analysis, Ortas et al. (2018) aimed to identify specific national institutions that either enhance or restrict companies' ESG performance. By doing so, they sought to provide insights into the role of institutional frameworks in shaping corporate behavior regarding ESG practices within emerging markets.

Zumente and Bistrova (2021) conducted a study to ascertain the recognition and integration of ESG (Environmental, Social, and Governance) factors in the Central and Eastern European (CEE) region. They analyzed mission statements from 122 companies across countries such as Croatia, Hungary, the Czech Republic, Slovakia, Poland, Estonia, Lithuania, and Latvia. The focus on the CEE region stemmed from the relatively lower prioritization of ESG factors compared to more developed regions. Their findings highlighted that intangible concepts, including relationships, reputation, and stakeholder loyalty, contribute significantly to equity market value. The exploration of ESG suggested that sustainable practices align with long-term shareholder value, as companies performing well on environmental and societal factors tend to achieve sustainable financial performance.

In a similar vein, Al-Hiyari and Kolsi (2021) investigated the behavior of stock market participants regarding ESG practices in environments with weak shareholder protection, focusing on non-financial companies in the Middle East and North Africa. Their study, spanning from 2013 to 2019, utilized Ohlson's (1995) valuation model to assess the pricing impact of ESG performance. The results indicated that market participants positively price ESG performance practices, with social capital and institutional structures exerting more influence than environmental impact.

Furthermore, Zumente and Lāce (2021) delved into the availability and correlation of ESG ratings assigned to companies listed on European stock exchanges. Their analysis revealed substantial divergence in ratings, emphasizing the importance for companies to understand the methodologies employed by rating agencies. They also highlighted the significance of ESG scoring for both investors and companies, as evidenced by differences in trading volume between companies with and without ESG ratings.

Daugaard and Din (2022) contributed to the understanding of key drivers of ESG performance through a systematic review of literature. They identified fundamental debates surrounding ESG responsibility, the role of stakeholders, relevant management theories, and conditions for achieving ESG progress. Their study emphasized the importance of informed decision-making in selecting mechanisms to enhance ESG outcomes and identified areas within the literature that warrant further exploration.

Collectively, these studies underscore the growing recognition of ESG factors in investment decisions and corporate strategies, highlighting their potential to drive long-term value creation and informing the evolving landscape of sustainable finance.

3. Methodology

Ohlson's (1995), model is a prominent approach in accounting and finance that links a firm's market value to its financial information. The core idea is that the market value of equity (MVE) is a function of the book value of equity (BVE) and residual income (earnings minus a charge for the cost of equity capital), we used Ohlson's the valuation model to examine the effect of scores ESG. Com this model we were able to establish that the market value of equity is a function of financial information (including book value and accounting results). We used what was proposed by Barth and Clinch (2009), which goes according to the variables used by Ohlson (1995) using the number of actions, mitigating the effects of scale. Our basic evaluation model will be this:

$$P_{i,t} = a_0 + a_1 BVPS_{i,t} + a_2 EPS_{i,t} + \varepsilon_{i,t} \quad (1)$$

In specification (1) the dependent variable $P_{i,t}$ corresponds to the price per share of firm i at the end of year t . The two independent variables $BVPS_{i,t}$ and $EPS_{i,t}$ correspond respectively to the Book Value per share and the Earnings per share of firm i at the end of year t .

The model can be expanded to include other non-financial variables, which nonetheless include value-relevant information, therefore generating a valuation model which the variable $X_{i,t}$ corresponds to a relevant variable or set of variables of interest that will capture the impact of ESG scores in the market value of equity

$$P_{i,t} = a_0 + a_1 BVPS_{i,t} + a_2 EPS_{i,t} + a_3 X_{i,t} + \varepsilon_{i,t} \quad (2)$$

Barth and Clinch (2009) extend the Ohlson model to mitigate the effects of scale by normalizing the variables. This typically involves scaling financial variables by the number of shares outstanding to obtain per-share values. This approach helps in dealing with heteroskedasticity and makes the model more comparable across firms of different sizes, we found applied by Miralles-Quiroz et al (2017), Miralles-Quiroz et al (2018), Lourenço et al (2012), Schadewitz and Niskala (2010), Cardamone et al (2012), Yoon et al (2018), de Klerk et al (2015) and by Annes et al (2022), just to name a few. In model (2), CSR encompasses (ESG, ENV, SOC and GOV). The impact of each pillar is analyzed individually, and also control variables are included.

$$P_{i,t} = a_0 + a_1 BVPS_{i,t} + a_2 EPS_{i,t} + a_3 CSR_{i,t} + a_4 CSR_{i,t} \times ESI + \sum a_5 Controls + \varepsilon_{i,t}$$

The controls in our model include the total debt-to-total assets ratio (LEVTD), the logarithm of total assets (LNASSETS), a net income quality measure (NIQ), World Governance Indicators from the World Bank for each country, and a composite indicator for the development of financial markets. Additionally, we use an Environmental Sensitive Industries (ESI) dummy variable to interact with CSR values for companies in environmentally sensitive sectors such as oil, gas, chemicals, cellulose, and steel. We expect the impact of CSR scores to be more significant for firms operating in these industries.

The LEVTD variable is incorporated because firms with high levels of debt are often subject to closer scrutiny by creditors. While this may enhance the relevance of their financial information, it can also incentivize them to manipulate earnings to meet debt covenant requirements. The inclusion of the LNASSETS variable reflects the longstanding recognition of firm size as a key determinant of firm value and returns. Larger firms typically face greater regulatory oversight, leading them to provide more informative disclosures to the market. Additionally, the NIQ variable, a composite measure encompassing six dimensions of governance quality, serves to control for the impact of corporate governance and reporting effectiveness. Al-Hiyari and Kolsi (2021) have advocated for the inclusion of this variable in similar analyses.

4. Results and Discussion

4.1 Results

We use as a database information on corporate social responsibility and financial information of companies listed in Bulgaria, Czech Republic, Greece, Hungary, Poland, Slovak Republic, Slovenia and Turkey.

To measure both ESG performance and financial information, we use the Thomson Reuters Elkon rating agency. The financial information is based on the share price, book value per share at the end of the year, and annual earnings per share of companies between 2000 and 2022.

A sample of 137 firms (1 firm from the Bulgária Stock Exchange, 1 firm from the Czech República Stock Exchange, 19 firms from the Greece Stock Exchange, 3 firms from the Hungary Stock Exchange, 31 firms from the Poland Stock Exchange, 1 firm from the Slovak Republic Stock Exchange, 1 firm from the Slovenia Stock Exchange and 80 firms from the Turkey Stock Exchange). Of the 137 companies, we obtained 880 observations of ESG scores. Next, we will present the Descriptive Statistics with the data obtained.

In this data, companies in the financial sector, companies with negative Book Value and outliers were removed for observations with variables more than 2.5 standard deviations from the mean value of the variable for the total sample (up and down) were removed from the Dataset. Descriptive statistics are presented in Table 1, below:

Table 1: Descriptive Statistics.

	PRICE	BVPS	EPS	ESG	ENV	SOC	GOV	NIQ	LEVTD	LNASSETS
mean	51,95	36,19	3,57	45,94	42,19	47,93	48,28	55,54	0,27	15,98
max	7100,00	1332,71	106,21	94,21	98,84	98,61	93,58	80,58	0,71	20,78
3rd quartile	26,66	22,75	1,99	63,88	65,83	69,80	65,96	70,14	0,38	16,90
median	11,05	7,77	0,80	45,82	43,47	46,50	48,78	59,35	0,28	15,95
1st quartile	5,44	3,70	0,22	27,26	17,72	25,12	32,63	36,87	0,14	14,99
min	0,00	0,17	0,00	0,00	0,00	0,80	1,81	32,64	0,00	11,90
stand. Dev	266,37	98,95	10,45	22,07	28,20	26,29	20,98	15,62	0,17	1,50
N	880	880	880	880	880	880	880	880	880	880

Source: Own Elaboration

In Table 2 the correlation between the variables and controls is presented. ESG scores and its pillars are not positively correlated with Price, BVPS and EPS. This leads us to believe that the ESG performance score does not contain information that is informative to stock market participants.

Table 2: Correlation Matrix.

	PRICE	BVPS	EPS	ESG	ENV	SOC	GOV	NIQ	LEVTD	LNASSETS
PRICE	1									
BVPS	0,68	1								
	0									
EPS	0,56	0,77	1							
	0	0								
ESG	-0,01	-0,02	-0,03	1						
	0,89	0,51	0,33							
ENV	0,03	0,02	0,03	0,91	1					
	0,35	0,47	0,38	0						
SOC	0,01	-0,03	-0,05	0,93	0,81	1				
	0,95	0,34	0,12	0	0					
GOV	-0,07	-0,06	-0,09	0,67	0,47	0,48	1			
	0,05	0,08	0	0	0	0				
NIQ	0,15	0,29	0,26	-0,38	-0,35	-0,39	-0,2	1		
	0	0	0	0	0	0	0			
LEVTD	-0,08	-0,09	-0,11	0,33	0,31	0,32	16	-0,19	1	
	0,01	0	0	0	0	0	0	0		
LNASSETS	0,14	0,37	0,34	0,33	0,34	0,24	0,31	-0,06	0,18	1
	0	0	0	0	0	0	0	0,5	0	

Source: Own Elaboration

In Table 2 of correlation ESG and its pillars are not positively correlated with Price, BVPS and EPS. This leads us to believe that the ESG performance score does not contain information that is informative to stock market participants.

4.2 Empirical Results and Discussion

As previously explained, we are implementing five models that expand on the modified Barth and Clinch (2009) assessment model: one model using the overall ESG performance score, three models using each of the scores from the different performance pillars plus dummies for Environmental Sensitive Industries (ESI). The preliminary results of the regressions are presented in the next set of Tables. A positive and statistically significant regression coefficient would indicate that the ESG performance scores contain information that is valued by investors.

The regression results show that the score of the environmental, social and governance pillar does not have a not statistically significant impact on firm value. With the use of the ESI dummy, the pillars still do not have a statistically significant impact on firm value. On the other hand, BVPS and EPS, the variables included in

the base model all have a positive and statistically significant impact on firm value. With respect to the controls used we find that only firm size has a positive and significant impact on firm value. Leverage has a negative although not statistically significant impact and Governance quality have a positive but not statistically significant impact on firm value.

Table 3: The effect of ESG scores on firm.

variable	baseline	model 1	model 2	model 3	model 4	model 5	model 6	model 7	model 8
BVPS	-0,2 **	-0,2 **	-0,2 **	-0,19 **	-0,22 ***	-0,21 ***	-0,22 ***	-0,2 **	-0,2 **
EPS	4,83 ***	4,85 ***	4,81 ***	4,82 ***	4,79 ***	4,86 ***	4,84 ***	4,82 ***	4,83 ***
NIQ	0,28	0,36	0,38	0,23	0,26	0,55	0,57	0,28	0,31
LEVTD	-31,6	-32,9	-36,3	-30,8	-34,7	-35,7	-38,4	-31,4	-30,1
LNASSETS	11,56 **	10,81 *	10,54 *	11,9 **	11,83 **	9,55 *	9,48 *	11,84 **	12,24 **
ESG		0,08	0,22						
ESGESI			-24						
ENV				-0,04	0,11				
ENVESI					-0,25				
SOC						0,21	0,31		
SOCESI							-0,17		
GOV								-0,03	-0,11
GOVESI									0,14
_cons	-150	-146	-142	-151	-150	-141	-141	-155	-161
N	880	880	880	880	880	880	880	880	880
R ²	0,24	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,25
R ² _a	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11
F	48,5	40,42	34,79	40,4	34,92	40,89	35,15	40,37	34,62

Note: * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$. Source: Own Elaboration.

These results suggest that in these emerging financial markets firm valuation is not tied to CSR relevant data but driven by the classic Earnings per Share and Book Value per Share data.

4.3 Robustness Checks and Discussion

For robustness checks, we performed two alternative specifications. In the first, as there were periods of contraction (2009 to 2012) and (2020 to 2021) pandemic periods, two dummies were created: one for the years 2009-2012 and another for the years 2021-2022. We interact these dummies with the variables of the original model, making BVPSCon and EPSCon for the first dummy and BVPSCV and EPSCV for the second dummy. The results are presented in the table below.

Table 4: The effect of ESG scores on firm.

variable	baseline	model 1	model 2	model 3	model 4	model 5	model 6	model 7	model 8
BVPS	-0,3 ***	-0,3 ***	-0,3 ***	-0,3 ***	-0,33 ***	-0,32 ***	-0,3 ***	-0,32 ***	-0,3 ***
EPS	4,88 ***	4,88 ***	4,8 ***	4,85 ***	4,79 ***	4,91 ***	4,86 ***	4,86 ***	4,85 ***
NIQ	0,42	0,42	0,5	0,31	0,34	0,59	0,63	0,42	0,41
LEVTD	-21	-22	-27	-20	-24	-24,3	-28	-20,9	-22
LNASSETS	8,94 *	8,89 *	8,5 *	9,63 *	9,59 *	7,62	7,48	10 *	9,79 *
BVPSCon	0,49 **	0,49 **	0,5 **	0,48 **	0,43 **	0,51 **	0,51 **	0,49 **	0,49 **
EPSCon	-3 ***	-3 ***	-3 ***	-2,9 ***	-2,88 **	-3,02 ***	-3,1 ***	-3,01 ***	-3 ***
BVPSCV	-0,1	-0,1	-0,1	-0,1	-0,05	-0,52	-0,1	-0,05	-0,1
EPSCV	4,57 ***	4,57 ***	4,6 ***	4,59 ***	4,62 ***	4,53 ***	4,58 ***	4,61 ***	4,62 ***
ESG		0,01	0,2						
ESGESI			-0,4						
ENV				-0,1	0,07				
ENVESI					-0,28				
SOC						0,14	0,29		
SOCESI							-0,3		
GOV								-0,12	-0,1
GOVESI									-0,1
_cons	-118	-117	-112	-119	-119	-112	-111	-1129	-124
N	880	880	880	880	880	880	880	880	880
R ²	0,33	0,33	0,3	0,33	0,33	0,33	0,33	0,33	0,33
R ² _a	0,19	0,19	0,2	0,19	0,19	0,19	0,19	0,19	0,19
F	40,2	26,2	33	36,2	33,25	36,3	32,3	26,3	33

Note: * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$. Source: Own Elaboration

In the second alternative specification, another set of regressions included the firms in the financial sector, previously removed from the database. In order to control for different patterns in Book Value and Leverage, we included a dummy variable for these firms serving as an interaction term with those controls.

Table 5: The effect of ESG scores on firm.

variable	baseline	model 1	model 2	model 3	model 4	model 5	model 6	model 7	model 8
BVPS	0,61 *	0,64 *	0,66 *	0,63 *	0,63 *	0,64 *	0,65 *	0,61 *	0,61 *
BVPSFin	0,71 *	0,69 *	0,69 *	0,71 *	0,71 *	0,69 *	0,68 *	0,71 *	0,71 *
EPS	2,34	2,16	2,19	2,27	2,28	2,21	2,24	2,22	2,23
NIQ	-0,1	-1,3	-1,4	-0,4	-0,42	1,27	-1,36	-0,15	-0
LEVTD	242 *	259 **	265 **	248 *	248,2 *	256,9 **	260 **	246 *	252 *
LEVFin	317 *	308 *	309 *	318 *	317,9 *	312,7 *	316 *	307 *	303 *
LNASSETS	-10	-1,8	-1,4	-8,1	-8,05	-3,25	-3,41	-5,96	-4,8
ESG		-1,1	-1,6						
ESGESI		,	1,16						
ENV				-0,2	-0,25				
ENVESI					0,04				
SOC						-0,79	-1,07		
SOCESI							0,79		
GOV								-0,67	-1,1
GOVESI									1,17
_cons	113	90,3	91,9	106	105,8	100,9	108	80,9	54,2
N	1259	1259	1259	1259	1259	1259	1259	1259	1259
R ²	0,04	0,42	0,04	0,04	0,04	0,04	0,04	0,04	0,04
R ² _a	-0,1	-0,1	-0,1	-0,1	-0,12	-0,12	-0,12	-0,12	-0,1
F	6,45	5,92	5,36	5,66	5,03	5,86	5,28	5,79	5,25

Note: * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$. Source: Own Elaboration.

The results obtained with these two different specifications go in line with the results obtained in the original specifications, in what concerns to the impact of CSR scores on firm valuation.

5. Conclusion

As the regression results indicate, the ESG scores (the overall score as well as the scores for the different pillars) impact is not statistically significant in the company's valuation, including for Environmentally Sensitive Industries, for which the attention to these dimensions captured in these scores is more relevant.

In the future we will investigate the results with variables that reflect the different characteristics that identify each other's markets, in order to understand whether the reason for this relative development of financial markets in these countries is.

It is also possible that one of the reasons for these results is the criteria and methodologies and the limitations for constructing ESG scores and also how ESG performance is transmitted to investors.

References

- Al-Hiyari, A., & Kolsi, M. C. (2021). How do stock market participants value ESG performance? Evidence from Middle Eastern and North African countries. *Global Business Review*, 0(0). <https://doi.org/10.1177/0972150921100151>
- Annes, M.C., Rosario, J. & Goncalves, L. M. (2022), The Environmental, Social and Governance information creates value for the shareholder in the Euronext Stock Exchanges? [Paper Presentation]. XX ENCUESTRO INTERNACIONAL AECA, Porto, Portugal
- Barth, M. E., & Clinch, G. (2009). Scale effects in capital markets-based accounting research. *Journal of Business Finance & Accounting*, 36(3-4), 253-288.
- Cardamone, P., Carnevale, C., & Giunta, F. (2012). The value relevance of social reporting: evidence from listed Italian companies. *Journal of Applied Accounting Research*, 13(3), 255-269.
- Daugaard, D., & Ding, A. (2022). Global drivers for ESG performance: The body of knowledge. *Sustainability*, 14(4), 2322.
- De Klerk, M., De Villiers, C., & Van Staden, C. (2015). The influence of corporate social responsibility disclosure on share prices: Evidence from the United Kingdom. *Pacific Accounting Review*, 27(2), 208-228.

- Miralles-Quirós, M. M., Miralles-Quirós, J. L., & Valente Gonçalves, L. M. (2018). The value relevance of environmental, social, and governance performance: The Brazilian case. *Sustainability*, 10(3), 574.
- Miralles-Quiros, M. M., Miralles-Quiros, J. L., & Arraiano, I. G. (2017). Sustainable development, sustainability leadership and firm valuation: Differences across Europe. *Business Strategy and the Environment*, 26(7), 1014-1028.
- Ohlson, J. A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary accounting research*, 11(2), 661-687.
- Ortas, E., Gallego-Álvarez, I., & Alvarez, I. (2019). National institutions, stakeholder engagement, and firms' environmental, social, and governance performance. *Corporate Social Responsibility and Environmental Management*, 26(3), 598-611.
- Schadewitz, H., & Niskala, M. (2010). Communication via responsibility reporting and its effect on firm value in Finland. *Corporate social responsibility and environmental management*, 17(2), 96-106.
- Yoon, B., Lee, J. H., & Byun, R. (2018). Does ESG performance enhance firm value? Evidence from Korea. *Sustainability*, 10(10), 3635.
- Zumante, I., & Bistрова, J. (2021). ESG importance for long-term shareholder value creation: Literature vs. practice. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(2), 127.
- Zumante, I., & Lăce, N. (2021). ESG Rating—Necessity for the Investor or the Company?. *Sustainability*, 13(16), 8940.

Agency Relations in the Adoption of Vendor Managed Inventory: Perspectives and Control Mechanisms

Vitor Ribeiro. *ESTG, Polytechnic of Porto. 8190571@estg.ipp.pt*

Sara Martins. *Center for Research and Innovation in Business Sciences and Information Systems (CIICESI), ESTG, Polytechnic of Porto. ssbm@estg.ipp.pt*

Alexandra Braga. *Center for Research and Innovation in Business Sciences and Information Systems (CIICESI), ESTG, Polytechnic of Porto. abraga@estg.ipp.pt*

Abstract

Purpose: Agency relationships arise whenever one-party hires another to make decisions on their behalf that maximise their interests. In inventory management, under the Vendor Managed Inventory strategy, retailers delegate authority to their suppliers to manage their inventories. This relationship between retailers and suppliers opens the possibility of agency relationships, mainly through the adoption of opportunistic behaviour by one of the parties that plays a non-cooperative game. The aim of the following article is to understand how Vendor Managed Inventory can avoid the existence of agency behaviours.

Methodology: The methodology adopted for the development of the article corresponds to an exploratory survey of the literature. Its aim is to: (1) evaluate the existing literature on the two topics discussed, Agency Theory and VMI, and (2) assess, through the literature, the possibility of conflicts of interest in the supplier-retailer business relationship, from the perspective of the supplier to the retailer and from the perspective of the retailer to the supplier.

Results: The investigation revealed that in traditional inventory management, the agency relationship is defined by the retailer as principal and supplier as agent, while in a VMI strategy the roles are reversed. In the VMI strategy scenario, the specifications of the VMI contract make it possible to limit the behavior of suppliers, preventing the existence of opportunism.

Research limitations: The results achieved in this article are limited by the lack of practical data that can confirm the instructions extracted from exploratory literature research.

Originality: This study aims to contribute to the literature by increasing existing theoretical knowledge and in a practical way for companies. The study's contribution to the literature is essentially reflected in the increased knowledge of the interconnection of the two themes, Vendor Managed Inventory and Agency Theory, given that the number of studies in the literature that directly link the two themes is small. On a practical level, the study has value for companies in that it exposes the difficulties resulting from the process of adopting this strategy.

Keywords: *Agency Theory; Vendor Managed Inventory; Inventory Management; Agency Costs.*

Acknowledgement: This work has been supported by national funds through FCT – Fundação para a Ciência e Tecnologia through project UIDB/04728/2020.

1. Introduction

The Agency Theory emerged in 1973 through a study by Ross, which indicates the existence of agency relationships whenever one person hires another to make decisions on their behalf. Later, in the early 1980s, the Vendor Managed Inventory (VMI) strategy emerged in the field of management, whereby retail companies began to delegate responsibility for managing and maintaining their inventories to their suppliers, making it possible to achieve significant cost reductions for both parties (Kuk, 2004). Adopting this strategy usually represents a paradigm shift in which companies no longer have only individual interests and start looking at the global interests of the supply chain (Zhao, 2019). However, companies that adopt VMI strategies are utility maximisers, so in addition to their common objectives, they seek to maximise their individual objectives (Darwish et al., 2012). This opens the possibility of opportunism and moral hazard, i.e., one of the parties with decision-making authority does not work as hard as expected to achieve the other's interests (Choi et al., 2019).

Addressing this issue is considered timely, given that there are still few articles in the literature that link VMI with agency theory. In addition, although there are articles linking inventory management with agency theory, the definition of the agency relationship (i.e. defining which party assumes the role of agent and which assumes that of principal) is still controversial, making it possible to have more than one perspective.

For investigation, an exploratory literature analysis methodology was adopted, with the objective of (1) evaluating the existence of agency relationships in the commercial relationship between suppliers and retailers and (2) evaluating how the VMI inventory management strategy prevents existence of agency behaviors in this relationship.

2. Literature Review/Revisão de Literatura/Revisión de Literatura

a. *Vendor Managed Inventory*

V MI emerged as a strategy for inventory management, motivated by pressure from large retailers in the early 1980s on their suppliers (Claassen et al., 2008). Companies such as Wal-Mart and Procter&Gamble have pioneered the use of this strategy, the basic principle of which is to shift responsibility for inventory management from retailers to suppliers (Kuk, 2004).

Compared to traditional strategies, in which retailers and suppliers carry out inventory management independently, in VMI there is a cancellation of the ordering process from the retailer to the supplier, with the latter becoming responsible for the replenishment process (Gharaei et al., 2023; Kaipia et al., 2002). Abolishing this process transfers the task of monitoring inventory to the supplier, who, by reviewing inventory levels physically or using technological means, decides to restock, guaranteeing the conditions agreed by the parties (Çetinkaya & Lee, 2000; Son & Ghosh, 2020; Wong et al., 2009).

Adopting this strategy requires an internal re-engineering process in the companies involved, given the need to coordinate and integrate processes between the parties (Yao et al., 2007). The supplier's access to the retailer's information reduces the phenomenon known as the Bullwhip Effect (Darwish et al., 2012; Taleizadeh et al., 2020). This phenomenon occurs when market information is distorted from reality, i.e., when retailers present a higher demand compared to their customer's real demand (Disney & Towill, 2003; Yao et al., 2007). For both retailers and suppliers, adopting this strategy has other benefits, such as cost savings (Yao et al., 2007), the reduction of safety stocks (Son & Ghosh, 2020), reduced stock-outs (Kleywegt et al., 2002), and improved activity planning (Salehi et al., 2020).

Despite the many advantages for all players, there are still companies that are sceptical about its use due to the possibility of opportunistic behaviour on the part of players (Kaipia et al., 2002; Lee & Whang, 2000).

2.2 Agency Theory

The terminology of Agency Theory was first referenced in the literature in the 1970s by Ross (1973), when he stated that an agency relationship arises in the relationship between two or more parties, in which one, known as the principal, appoints another, known as the agent, to represent him, determining his decision-making decisions.

In this type of principal-agent relationship, the principal hires the agent, giving him the authority to make decisions that align with his preferences. However, since they are both utility maximisers, it is to be expected that the agent, as a result of the freedom and authority granted, will make decisions that are in line with his interests and not just those of the principal (Barker et al., 2024; Jensen & Meckling, 1976). It is mainly due to agents' opportunism that Moral Hazard arises, which, according to Eisenhardt (1989) and Barker et al. (2024), refers to the agent's lack of effort or weak effort to achieve the principal's interests.

The literature argues that the conflict of interests between agents and principals, can be minimised using incentives, information or management control mechanisms (Bosse & Phillips, 2016). The incentive mechanism links the agent's remuneration to a performance measure (Smith & Watts, 1992). The information mechanism controls agents through the information and signals emitted by the markets (Fama, 1980). In turn, the management control mechanism requires the existence of a decision-making hierarchy, in which principals validate and monitor the decisions made by agents (Fama & Jensen, 1998).

Although implementing control mechanisms does not imply that the agents' decisions will improve the company's value, authors such as Bebchuk & Fried (2003) state that the incentive mechanism is the most natural way to mitigate the conflict of interest between principals and agents.

2.3 Vendor Managed Inventory and Agency Theory

Through VMI strategies, inventory management is developed through relationships between retailers and suppliers whose main objective is to maximise the overall profit of the supply chain (Kulp, 2002).

The establishment of these partnership relationships between retailers and suppliers for inventory management leads those involved to an agency relationship, as each has individual objectives to optimise their cost structure related to inventory management (Darwish et al., 2012; Pires et al., 2018). Although this idea is defended by Rungtusanatham et al. (2007) and Celly & Frazier (1996), there is controversy over which party, the retailer, or the supplier, takes on the role of agent and principal.

For Celly & Frazier (1996), in a traditional inventory management strategy, the role of agent is taken on by the retailer, since they sign contracts to sell the vendor's products to end consumers, representing them at the time of sale. As for Rungtusanatham et al. (2007), who defends the same idea in the traditional perspective, in a VMI strategy, the fact that retailers grant freedom and responsibility to suppliers to monitor their inventory, the supplier assumes the role of agent and the retailer that of principal.

In a traditional inventory management scenario, with the commercialisation of substitute products, retailers are free to deliberately promote stock-outs of certain products, especially those that guarantee them lower profit margins. Such deliberate stock-outs lead consumers to buy substitute products that guarantee higher profit margins for the retailer, resulting in a lost sale for the supplier but rarely for the retailer (Achabal et al., 2000). By adopting a VMI strategy, through access to information about the retailer's inventory levels, the supplier can guarantee the continuous existence and display of its products in the retailer's space, minimising stock-outs that could lead consumers to buy substitute products (Kraiselburd et al., 2004).

Although in a traditional scenario the supplier is considered the principal, with the adoption of VMI strategies he takes on the role of agent, since he has the freedom and authority to define quantities and replenishment deadlines on behalf of the retailer (Lee & Whang, 2000). Such freedom encourages the supplier to send large quantities of products to retailers, to guarantee savings on maintenance and ordering costs (Darwish et al., 2012). Despite this, by applying maximum limits to the amount of inventory, retailers minimise the temptation for suppliers to adopt opportunistic behaviour since they will be penalised for having excess inventory levels (Gharaei et al., 2019).

3. Methodology

This article was developed using an exploratory literature search to gain insights and knowledge about the main concepts covered, to answer the research question: "Can the VMI inventory management strategy prevent the existence of agency behaviours?".

4. Results

The exploratory literature search made it possible to compare the two inventory management strategies, traditional and VMI, on the various variables involved (Table 1).

Table 1: Inventory management strategies

VARIABLES	TRADITIONAL MANAGEMENT	VMI STRATEGY
Placing Orders	Order-based (Lee & Whang, 2000)	Based on stock level (Hariga et al., 2013)
Stock Security	Retailer and Supplier (Lee & Whang, 2000)	Only at the Supplier (Lee & Whang, 2000)
Definition Quantity and Replenishment Time	Retailer (Kraiselburd et al., 2004)	Supplier (Gerchak & Wang, 2004)
Responsibility for Stock Control	Retailer (Kleywegt et al., 2002)	Supplier (Guggenberger et al., 2020; Kleywegt et al., 2002)
Search Information	Tends to be distorted (Disney et al., 2003; Li et al., 2006)	Final costumer (Marquès et al., 2010; Salehi et al., 2020)
Socket Decisions	Decentralized (Disney & Towill, 2003)	Centralized (Kleywegt et al., 2002; Taleizadeh et al., 2020)
Principal goal	Individual interests (Zhao, 2019)	General Interests (Zhao, 2019)

Information Shared between the parties	Order request (Lee & Whang, 2000)	Stock level and sales data (Angulo et al., 2004)
Behavior Opportunist	Deliberate stock ruptures (Kraiselburd et al., 2004)	Large Shipping Quantities (Darwish et al., 2012)
Agent	Supplier (Celly & Frazier, 1996)	Retailer (Rungtusanatham et al., 2007)
Principal	Supplier (Celly & Frazier, 1996)	Retailer (Rungtusanatham et al., 2007)

Source: Own elaboration

5. Discussion

The commercial relationships established between suppliers and retailers enable the existence of agency relationships, in the eyes of Agency Theory, both from a retailer-supplier perspective and from a supplier-retailer perspective, given that both maximize utility.

Inventory management, using traditional strategies, allows the existence of opportunistic behaviour on the part of the retailer. This opportunism may arise from the retailer's promotion of inventory proposals for products from suppliers that provide a lower margin, in order to encourage consumers to purchase substitute products from suppliers with the guarantee of higher margins (Kraiselburd et al., 2004). In this scenario, the implementation of the VMI strategy becomes a mechanism to control retailer opportunism, as these suppliers guarantee the continuous exposure and availability of their products at retailers.

In inventory management by VMI, there is also the possibility of agency relationships, namely through opportunistic behaviour by suppliers. This behaviour results from the possibility of achieving these economies of scale, in delivery and transportation costs, by sending large details to retailers, above all that is necessary (Darwish et al., 2012). In this scenario, the specifications of the VMI contract become a mechanism to prevent

the possibility of agency relationships, as they include penalties for suppliers if stock levels are higher than pre-agreed.

6. Conclusion

This study, using exploratory literature research, allows us to understand that in a traditional inventory management scenario, the adoption of VMI strategies allows the opportunistic behaviour of retailers to be mitigated. From this perspective, the supplier, who assumes the role of principal, is able to prevent the retailer from promoting substitute products.

From the perspective of the relationship between retailer and supplier, the adoption of a VMI strategy allows the retailer, who assumes the role of principal in the agency relationship that is established, to prevent the existence of possible opportunistic behaviour on the part of the supplier. The adoption of the inventory limit, mainly the maximum limit, with the attribution of penalties for exceeding it, prevents the supplier from seeking economies of scale in delivery and transportation costs.

The results achieved in this article are limited by the lack of practical data that can prove the conclusions drawn from the exploratory literature research. For future research, it is suggested to integrate characteristics of other inventory management strategies into VMI strategies, in order to understand how this integration can result in a more effective mechanism for controlling conflict of interests between retailers and suppliers.

References

- Achabal, D. D., McIntyre, S. H., Smith, S. A., & Kalyanam, K. (2000). A decision support system for vendor managed inventory. *Journal of Retailing*, 76(4), 430–454. [https://doi.org/10.1016/S0022-4359\(00\)00037-3](https://doi.org/10.1016/S0022-4359(00)00037-3)
- Angulo, A., Nachtmann, H., & Waller, M. A. (2004). Supply Chain Information Sharing In A Vendor Managed Inventory Partnership. *Journal of Business Logistics*, 25(1), 101–120. <https://doi.org/10.1002/j.2158-1592.2004.tb00171.x>
- Barker, J. M., Hofer, C., & Dobrzykowski, D. D. (2024). Supply chain representation on the board of directors and firm performance: A balance of relational rents and agency costs. *Journal of Operations Management*. <https://doi.org/10.1002/joom.1291>
- Bebchuk, L. A., & Fried, J. M. (2003). Executive Compensation as an Agency Problem. *Journal of Economic Perspectives*, 17(3), 71–92. <https://doi.org/10.1257/089533003769204362>

- Bosse, D. A., & Phillips, R. A. (2016). Agency Theory and Bounded Self-Interest. *Academy of Management Review*, 41(2), 276–297. <https://doi.org/10.5465/amr.2013.0420>
- Celly, K. S., & Frazier, G. L. (1996). Outcome-Based and Behavior-Based Coordination Efforts in Channel Relationships. *Journal of Marketing Research*, 33(2), 200–210. <https://doi.org/10.1177/002224379603300207>
- Çetinkaya, S., & Lee, C.-Y. (2000). Stock Replenishment and Shipment Scheduling for Vendor-Managed Inventory Systems. *Management Science*, 46(2), 217–232. <https://doi.org/10.1287/mnsc.46.2.217.11923>
- Choi, M., Rabinovich, E., & Richards, T. J. (2019). Supply Chain Contracts and Inventory Shrinkage: An Empirical Analysis in the Grocery Retailing Industry. *Decision Sciences*, 50(4), 694–725. <https://doi.org/10.1111/deci.12356>
- Claassen, M. J. T., Weele, A. J. Van, & Raaij, E. M. Van. (2008). Performance outcomes and success factors of vendor managed inventory (VMI). *Supply Chain Management: An International Journal*, 13(6), 406–414. <https://doi.org/10.1108/13598540810905660>
- Darwish, M. A., Odah, O. M., & Goyal, S. K. (2012). Vendor Managed Inventory models under contractual agreement. *International Journal of Mathematics in Operational Research*, 4(2), 175. <https://doi.org/10.1504/IJMOR.2012.046376>
- Disney, S. M., Potter, A. T., & Gardner, B. M. (2003). The impact of vendor managed inventory on transport operations. *Transportation Research Part E: Logistics and Transportation Review*, 39(5), 363–380. [https://doi.org/10.1016/S1366-5545\(03\)00014-0](https://doi.org/10.1016/S1366-5545(03)00014-0)
- Disney, S. M., & Towill, D. R. (2003). The effect of vendor managed inventory (VMI) dynamics on the Bullwhip Effect in supply chains. *International Journal of Production Economics*, 85(2), 199–215. [https://doi.org/10.1016/S0925-5273\(03\)00110-5](https://doi.org/10.1016/S0925-5273(03)00110-5)
- Eisenhardt, K. M. (1989). Agency Theory: An Assessment and Review. *The Academy of Management Review*, 14(1), 57. <https://doi.org/10.2307/258191>
- Fama, E. F. (1980). Agency Problems and the Theory of the Firm. *Journal of Political Economy*, 88(2), 288–307. <https://doi.org/10.1086/260866>
- Fama, E. F., & Jensen, M. C. (1998). Separation of Ownership and Control. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.94034>
- Gerchak, Y., & Wang, Y. (2004). Revenue-Sharing vs. Wholesale-Price Contracts in Assembly Systems with Random Demand. *Production and Operations Management*, 13(1), 23–33. <https://doi.org/10.1111/j.1937-5956.2004.tb00142.x>
- Gharaei, A., Karimi, M., & Hoseini Shekarabi, S. A. (2019). An integrated multi-product, multi-buyer supply chain under penalty, green, and quality control polices and a vendor managed inventory with consignment stock agreement: The outer approximation with equality relaxation and augmented penalty algorithm. *Applied Mathematical Modelling*, 69, 223–254. <https://doi.org/10.1016/j.apm.2018.11.035>
- Gharaei, A., Karimi, M., & Hoseini Shekarabi, S. A. (2023). Vendor-managed inventory for joint replenishment planning in the integrated qualitative supply chains: generalised benders decomposition under separability approach. *International Journal of Systems Science: Operations & Logistics*, 10(1). <https://doi.org/10.1080/23302674.2021.1962428>
- Guggenberger, T., Schweizer, A., & Urbach, N. (2020). Improving Interorganizational Information Sharing for Vendor Managed Inventory: Toward a Decentralized Information Hub Using Blockchain Technology. *IEEE Transactions on Engineering Management*, 67(4), 1074–1085. <https://doi.org/10.1109/TEM.2020.2978628>
- Hariga, M., Gumus, M., Daghfous, A., & Goyal, S. K. (2013). A vendor managed inventory model under contractual storage agreement. *Computers & Operations Research*, 40(8), 2138–2144. <https://doi.org/10.1016/j.cor.2013.03.005>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)

- Kaipia, R., Holmström, J., & Tanskanen, K. (2002). VMI: What are you losing if you let your customer place orders? *Production Planning & Control*, 13(1), 17–25. <https://doi.org/10.1080/09537280110061539>
- Kleywegt, A. J., Nori, V. S., & Savelsbergh, M. W. P. (2002). The Stochastic Inventory Routing Problem with Direct Deliveries. *Transportation Science*, 36(1), 94–118. <https://doi.org/10.1287/trsc.36.1.94.574>
- Kraiselburd, S., Narayanan, V. G., & Raman, A. (2004). Contracting in a Supply Chain with Stochastic Demand and Substitute Products. *Production and Operations Management*, 13(1), 46–62. <https://doi.org/10.1111/j.1937-5956.2004.tb00144.x>
- Kuk, G. (2004). Effectiveness of vendor-managed inventory in the electronics industry: determinants and outcomes. *Information & Management*, 41(5), 645–654. <https://doi.org/10.1016/j.im.2003.08.002>
- Kulp, S. C. (2002). The Effect of Information Precision and Information Reliability on Manufacturer-Retailer Relationships. *The Accounting Review*, 77(3), 653–677. <https://doi.org/10.2308/accr.2002.77.3.653>
- Lee, H. L., & Whang, S. (2000). Information sharing in a supply chain. *International Journal of Manufacturing Technology and Management*, 1(1), 79. <https://doi.org/10.1504/IJMTM.2000.001329>
- Li, S., Ragu-Nathan, B., Ragu-Nathan, T. S., & Subba Rao, S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega*, 34(2), 107–124. <https://doi.org/10.1016/j.omega.2004.08.002>
- Marquès, G., Thierry, C., Lamothe, J., & Gourc, D. (2010). A review of Vendor Managed Inventory (VMI): from concept to processes. *Production Planning & Control*, 21(6), 547–561. <https://doi.org/10.1080/09537287.2010.488937>
- Pires, M. C., Frazzon, E. M., de Souza Silva, L., Holtz, T. H., Hellingrath, B., & Saalman, P. (2018). *Collaborative Distributed Operational Planning for Spare Parts Supply Chains* (pp. 95–101). https://doi.org/10.1007/978-3-319-74225-0_12
- Ross, S. (1973). The Economic Theory of Agency: The Principal's Problem. *American Economic Review*, 63, 134–139.
- Rungtusanatham, M., Rabinovich, E., Ashenbaum, B., & Wallin, C. (2007). Vendor-Owned Inventory Management Arrangements in retail: An Agency Theory Perspective. *Journal of Business Logistics*, 28(1), 111–135. <https://doi.org/10.1002/j.2158-1592.2007.tb00234.x>
- Salehi, S. A. H. A., Zahedi, A., Kazemi, M., Soroor, J., & Hajiaghahi-Keshteli, M. (2020). Determination of the optimal sales level of perishable goods in a two-echelon supply chain network. *Computers & Industrial Engineering*, 139, 106156. <https://doi.org/10.1016/j.cie.2019.106156>
- Smith, C. W., & Watts, R. L. (1992). The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics*, 32(3), 263–292. [https://doi.org/10.1016/0304-405X\(92\)90029-W](https://doi.org/10.1016/0304-405X(92)90029-W)
- Son, J. Y., & Ghosh, S. (2020). Vendor managed inventory with fixed shipping cost allocation. *International Journal of Logistics Research and Applications*, 23(1), 1–23. <https://doi.org/10.1080/13675567.2019.1568974>
- Taleizadeh, A. A., Shokr, I., Konstantaras, I., & VafaeiNejad, M. (2020). Stock replenishment policies for a vendor-managed inventory in a retailing system. *Journal of Retailing and Consumer Services*, 55, 102137. <https://doi.org/10.1016/j.jretconser.2020.102137>
- Wong, W. K., Qi, J., & Leung, S. Y. S. (2009). Coordinating supply chains with sales rebate contracts and vendor-managed inventory. *International Journal of Production Economics*, 120(1), 151–161. <https://doi.org/10.1016/j.ijpe.2008.07.025>
- Yao, Y., Evers, P. T., & Dresner, M. E. (2007). Supply chain integration in vendor-managed inventory. *Decision Support Systems*, 43(2), 663–674. <https://doi.org/10.1016/j.dss.2005.05.021>

Zhao, R. (2019). A Review on Theoretical Development of Vendor-Managed Inventory in Supply Chain. *American Journal of Industrial and Business Management*, 09(04), 999–1010.
<https://doi.org/10.4236/ajibm.2019.94068>

Marketing Plan for the Company JAVR Inspeções Automóvel

Rui Salvador Gonçalves, ISAG – European Business School, Porto, Portugal. Research Center in Business Sciences and Tourism (CICET – FCVC), Porto, Portugal. Email: rui.salvador@isag.pt

Victor Tavares, ISAG – European Business School, Porto, Portugal. Research Center in Business Sciences and Tourism (CICET – FCVC), Porto, Portugal. Email: vmtavares@isag.pt

Abstract

Purpose: In a dynamic and competitive environment such as the automotive sector, where legal compliance, customer satisfaction, and innovation are crucial, Vehicle Technical Inspection Centers (VTIC) play a fundamental role in maintaining vehicle integrity and safety. JAVR Lda., an established company in Paredes and Viana do Castelo, faces challenges in standing out in the market, ensuring regulatory compliance, and simultaneously providing superior customer experience. This work aimed to develop a marketing plan that allows JAVR to improve its market position, increase customer satisfaction and retention, and expand its customer base.

Methodology: The methodological approach adopted for this study was of qualitative nature, involving structured interviews with relevant stakeholders in the context of VTIC. The choice of structured interviews was due to the need to gain an in-depth understanding of the perceptions, attitudes, and behaviors of the company's customers and employees. Ten individuals with significant roles in marketing, customer service, and operations within the vehicle inspection segment were interviewed. In addition to the interviews, a SWOT analysis was conducted to identify the strengths, weaknesses, opportunities, and threats faced by JAVR. This analysis was complemented by market research and customer feedback, providing a comprehensive and detailed view of the company's internal and external environment.

Results: The analysis revealed that service quality is a critical factor for customer satisfaction. JAVR should continuously invest in the training of its employees to ensure they are up to date with the best practices and technologies available in the sector. Continuous training is essential to maintain operational efficiency and ensure that customers receive high-quality service.

The company should create a continuous training plan that includes regular update courses, workshops, and specific training on new technologies and regulations in the vehicle inspection sector. Additionally, encouraging participation in conferences and seminars can keep the management team informed about market trends and best practices.

On the other hand, effective communication is another fundamental pillar identified in the research. Clear and transparent communication with customers positively influences customer perception and the company's competitiveness. JAVR should adopt communication strategies that highlight its strengths and competitive differentiators. Implementing an

integrated communication strategy using traditional and digital channels can significantly improve the company's visibility and image. This includes the use of social media, newsletters, email marketing campaigns, and an updated website with clear and useful information for customers. The company should also consider creating a blog with relevant content that can educate customers about the importance of regular inspections and other related topics.

The implementation of Customer Relationship Management (CRM) practices and investment in technology emerged as critical elements for JAVR's success. An effective CRM system will allow the company to better manage customer interactions, personalize service, and identify opportunities for continuous improvement. Additionally, investment in technology such as information management systems and advanced diagnostic tools can significantly improve inspection processes' efficiency and customer experience. The company should select a CRM platform that is easy to integrate with existing systems and offers features such as contact management, marketing automation, data analysis, and detailed reporting. The use of advanced technology in inspection centers, such as state-of-the-art diagnostic scanners, will increase inspection accuracy and speed, providing a competitive advantage in the market.

Limitations: The main limitations of the research include the sample limited to ten interviews, which may not represent the entirety of the perceptions and behaviors of JAVR stakeholders. Furthermore, the research was conducted during a specific period, which may not reflect future changes in the market or consumer behavior.

Originality: This work provides an original contribution by proposing innovative strategies that go beyond regulatory compliance, focusing on customer experience and technological innovation. The developed marketing plan will not only benefit JAVR but can also serve as a model for other companies in the sector.

Keywords: *Customer; Loyalty, Marketing Plan, Vehicle Technical Inspection Centers*

Session – “Innovations and Challenges in Sustainable Tourism Management”

Chair: António Lopes de Almeida

Mass Tourism in World Heritage Sites: The Case of Sintra

Ilídia Carvalho. *Universidade Lusíada (Lusíada University), Escola Superior de Hotelaria e Turismo do Estoril (Estoril Higher Institute for Tourism and Hotel Studies), Portugal. Ilidiacarvalho@gmail.com / Ilidia.carvalho@eshte.pt*

Miguel Brito. *Escola Superior de Hotelaria e Turismo do Estoril (Estoril Higher Institute for Tourism and Hotel Studies), Portugal. miguel.brito@eshte.pt*

Abstract

Purpose: The town of Sintra, located near Lisbon, has witnessed a significant increase in mass tourism in recent years. Both authors being lecturers and closely connected to tourism activities, have observed the changes in tourism and the impact it has on Sintra, which has become a problematic destination. The main goal of this text is to understand how mass tourism affects this popular destination and propose some containment measures to mitigate the problem while promoting heritage preservation.

Methodology: The present exploratory study adopted a qualitative and descriptive case study approach. The revision of literature related to mass tourism was followed by data analysis based on interviews, and direct observation. Several interviews were conducted with different stakeholders, including those responsible for Sintra's heritage, DMCs and Tourist Guides Associations. After transcribing the interviews, the content was analysed, and the information was presented in a table.

Results: The findings indicate that there are a few uncomplicated steps that can be taken to enhance the visiting experience at the palaces and sites in Sintra. These measures include recommending and promoting the use of technology and alternative tours, as well as providing information to visitors about less crowded sites. Improving the organization of visits to the monuments can also heighten the satisfaction of visitors.

Research Limitations: This study faced limitations such as non-participation from important responsible entities, that did not respond to the interviews due to bureaucratic matters or lacking data.

Originality: This exploratory study will provide valuable insight into the reality of tourism in Sintra, as no other similar study has been conducted to our knowledge.

Keywords: *Mass Tourism, Overtourism, Sintra, Management, World Heritage*

1. Introduction

According to the World Tourism Organization (UNWTO), in 1950 there were a total of 25 million visitor entries worldwide. In 1980 the tourist arrivals globally reached 278 million and in 1995 it almost doubled to 528 million. In 2016, the UNWTO statistics showed 1.23 billion tourists globally, and by 2030 1.8 billion are estimated. There can be no doubt about how this activity has become much rentable. “Among the largest and fastest growing sectors in the world, tourism contributes to 10% of global GDP”, according to the United Nations Environment Program (UNEP).

Nevertheless, as several authors state, “there are both positive and negative impacts from tourism” (Jitsumpun & Muneenam 2021: 1326) and due to the increasing development of this activity in many regions, we have reached a situation of mass tourism – defined as “a form of tourism that attracts larger groups of tourism (...) highly commercialised and offers few opportunities for interactions between hosts and tourists” (Li, Boley and Yang, 2022: 787) – or even of overtourism – being the latter, the increase in tourist numbers at such high volumes that it negatively impacts residents, visitors, and the surrounding environment of a particular destination (Orellana, 2022).

Sintra is a town with a population of 385.606 inhabitants (2021). The town centre is home to around 3.000 people, according to the municipality. Nevertheless, the historical area is the most visited one., Sintra is famous for its cultural landscape and was listed as a UNESCO World Heritage Site in 1995. The reason for the concentration of all its cultural and historically valuable buildings is especially its unique microclimate.

Table I: Number of visitors to the three most visited palaces in Sintra

Number of Visitors			
	Sintra Nacional Palace	Regaleira Palace and gardens	Pena Palace and Park
2019	510.005	1.164.951	2.149.736
2022	371.586	964.612	1.704.729

Source: Parques de Sintra, Monte da Lua, S.A. and CulturSintra Foundation

Table I presents the total number of visitors to the three most important attractions in Sintra, which are Regaleira Palace managed by a local Foundation and the Sintra National Palace as well as the Pena Palace both managed by Parques de Sintra-Montes da Lua SA. The most visited monument is the Pena Palace with more than 2 million visitors in 2019 and 1,7 million visitors in 2022 which are huge numbers considering the total of inhabitants. It is also worth noting that numbers decreased from 2019 to 2022 because of COVID-19 but, according to the information given by the media in 2023, they have overcome already the numbers of 2019.

The purpose of this study is to understand the impact of mass tourism on Sintra and how this issue can be addressed. To achieve this, the authors conducted a literature review before directly observing tourists in Sintra. While conducting the study, several important questions came up, including:

- What measures have already been taken to prevent overcrowding in Sintra?
- What additional measures can be implemented to mitigate potential over-tourism in this destination?
- What are the future implications of mass tourism for stakeholders in Sintra?

2. Literature review: Concept of mass tourism

The word mass is commonly defined as, “a large number of human beings [. . .] viewed as forming an aggregate in which their individuality is lost” (OED, 2008). The mass tourists tend to follow the crowd. Naumov and Green (2016) state that mass tourism refers to the displacement of many organized tourists to popular holiday destinations for recreational purposes. Conceptually, this type of tourism features homogeneous leisure products and prearranged experiences for mass tourists. But the concept must change nowadays.

The above-mentioned definitions do not recognize the growing numbers of independent mass tourists. “It has been widely acknowledged that the tourism demand and supply are becoming more independent, active, individual and flexible, which is interpreted either as the end of mass tourism” (Poon, 1993) or its “change into more multiple forms” (Ioannides and Debbage, 1998). Independent tourists, who travel on low-cost airlines, stay in Airbnb accommodations, consume pseudo-free tours, and are always connected with social networks are also the ones that provoke the infinite queues in front of the monuments they want to visit, only because they read on the Internet that a given attraction is a ‘must-see’. It is “the urge to do as others did, and to join the multitudes who went before, all engaging in such acts of quasi-individuation as taking a selfie as proof of one's presence” (Kroes, 2020: 386).

According to UNTWO (2018), mass tourism is often confused with overtourism - when the carrying capacity of the destination is exceeded and both locals and tourists feel bad, mostly compromising a particular destination, as Orellana (2022) also referred to. Overtourism refers more precisely to seasonality” (Komorowski and Holderna-Mielcarek, 2019: 72). On the same matter, the same authors argue that “The only way of halting the downward spiral of the negative influence of mass tourism is the coordinated actions of local government and residents that notice its threats” (2019: 70). Kroes (2020) states that tourism is an autoimmune disease. However, as self-destructive as it is, it is also self-regenerating, changing its appearance and purpose.

The idea that underlies the concepts of mass tourism and overtourism is the idea of quantity. But there are no fixed numbers to define overtourism and mass tourism. It depends on who defines it and the context it falls into (the territory, the people involved, and the tourists themselves). The number of people who feel comfortable hosting visitors can depend on the location. It is a social construct (Vainikka, 2013; Butcher, 2020) that has several advantages and disadvantages as we see in Table II.

Table II – advantages and disadvantages of mass tourism

ADVANTAGES	DISADVANTAGES
Creates employment	Jobs mostly occasional
Generate Revenues	Low salaries
Brings local development	Huge infrastructures
Establishes facilities	Destruction of natural areas
Tourists see more in a shorter time	Gentrification
Is educational and /or social	Social Contamination
Usually less expensive	Polluting transports
Fun and safe	Food and water consumed

Source: authors based on Jitsumpun and Munneman, 2021; Vainikka, 2013; Biagi, Ladu, Meleddu and Rovuela, 2020; Komorowski and Holderna-Mielcarek, 2019

3. Methodology

Initially, 10 semi-structured interviews with high-level stakeholders were planned, but only two responses were received from CulturSintra Foundation, and a library curator. The other stakeholders did not answer. The ones who work for the town council evoked bureaucracy issues. Sintra Palaces' directors (Parques de Sintra-Monte da Lua, S.A.), did not respond either. They argued that they did not have enough factual data to answer the questions.

Therefore, the method had to change to:

1. Direct observation in Sintra village and the three most visited monuments
2. E-mail interviews with five DMCs (only four answers were obtained)
3. E-mail interviews with the Presidents of two Tourist guides' associations – AGIC (Tourist Guides and Tour Managers Association) and SNATTI (National Union of Tourism Translators and Interpreters)

Therefore, the sample of this study is constituted of two representatives of monuments in Sintra, four DMC travel agents, and two representatives of the two tourist guides associations in Portugal. The sample is very heterogeneous including several types of stakeholders, each one of them with a different perspective on the issues. The interviews are integrated into different contexts. Therefore, the questions were, when necessary, adapted to each one of the responders' dimensions of management. The answers represent the interviewees' convictions.

The instrument to representatives of monuments, guides associations and DMCs was sent by private e-mail from the 15th of May to the 15th of June 2023 and included three open-ended questions and one closed question. Direct observation took place on the 2nd, 3rd, and 4th of June 2023 helping the authors to understand the situation. The findings of the interviews were categorized according to the questions and considering the most important and repeated answers, which were underlined (see Table below) and included in one different column for each group of stakeholders.

4. Results and Discussion

Table III shows a summary of the research findings. It is divided into four columns. In the first column the questions asked to the different stakeholders are listed, whereas in the other three columns, we find the stakeholders' responses: Monuments, DMCs, and guides' associations. The underlined words and sentences correspond to relevant viewpoints repeated at least twice.

Table III: Questions and answers – Sintra's stakeholders

Questions	Monuments	DMCs	Guides' Associations
1. What measures have already been implemented to avoid overcrowding in Sintra?	- <u>time slots with a reasonable limit of visitors</u> - reservations - <u>alternative itineraries</u>	- <u>negotiate with monuments</u> - <u>no overloaded slots</u> - <u>alternative itineraries</u> - adjust/eliminate visits	- <u>negotiate with monuments</u>
2. What further measures can be taken to mitigate the phenomenon of overtourism?	- <u>create an information channel</u> - disseminate current measures - diversify languages used - consider the typology of the tourist	- <u>create a traffic light app accessible to everyone</u> - discounts on monuments with less demand - decentralize - <u>visit in periods of less demand</u>	- <u>create realistic slots to maintain the quality of service</u> - improve access conditions - parking outside the centre and shuttle bus service

		- <u>create priority queue for groups</u>	- <u>schedule and different entrance for groups</u>
3. <i>What consequences does mass tourism will predictably have for your work in the future?</i>		- <u>a threat to the quality of service</u> - increased visiting time - complaints due to delay - eliminate visits of sites in Sintra	- struggle to comply with time - <u>decrease in the quality and dignity of the service</u> - <u>decreased client satisfaction</u>

Source: The authors

Many stakeholders consider that several measures can still be introduced to minimize mass tourism situations. Besides, most of the respondents agree that mass tourism will affect the image of the destination and will have strong implications.

According to the answers to question 1, both representatives of monuments and DMCs agree that time slots to visit the palaces in Sintra are a positive measure but they should be better organised (fewer persons each time). Likewise, there should be suggestions for alternative tours for the visitors. DMCs and guides' associations also state that the dialogue with the representatives of monuments should be easier and more frequent.

Respondents to question 2, agree that technologies with updated information should be always available not only to tourists but to everyone who is part of the tourist system. DMCs and guides' associations claim that realistic slots in periods of less demand should be created to improve client satisfaction and that tourist' parties should have a different queue/entrance in the palaces.

The next is only answered by DMCs and tourist guides' associations. According to these stakeholders the visiting quality, and consequently the tourist satisfaction, will decrease in the future, due to increasing time queuing and waiting for the visits of the palaces, eventually leading to complaints.

Based on direct observation, it was noted that it is feasible to visit the Pena Palace during extended hours, such as early in the morning or after regular closing time. However, it should be noted that the morning period is typically more crowded in all three locations.

4. Conclusions

Mass tourism and overtourism are a consequence of the last decades' tourism boost and they raised complicated questions that are bringing new ways of thinking about tourism. Nowadays, it is not only necessary to stimulate tourism, but it is imperative to control its growth avoiding or at least minimizing, whenever possible, negative aspects. The World Heritage Sites became great attractions and have now big problems with that. Hence, the authorities must struggle for better planning and management strategies, stimulating the dialogue among stakeholders involved including the community and finding common interests.

'Answering our first question: Several measures have been applied in Sintra to mitigate mass tourism impacts like entrance by slots in some places or alternative itineraries. But to address the issue of mass tourism in Sintra, and answer our second question, we can suggest implementing other measures, including managing the distribution of tourists in both time and space, as it already happens at Pena Palace and introducing smart tourism techniques. Additionally, clear regulations should be created for both tourists and locals. To ensure the successful implementation of these measures, tourism agents should receive training and open channels of dialogue should be created. As for the third question, mass tourism, when not properly controlled, will have several negative impacts on the stakeholders, creating stress and bad quality tourism.

A final question arises: When will the figures be enough? And who will decide that?

References

- Biagi B, Ladu M, Meleddu M and Royuela V (2020) Tourism and the city: The impact on residents' quality of life. *International Journal of Tourism Research*, 22:168-181.
- Butcher J (2020) Constructing mass tourism. *International Journal of Cultural Studies*, 23(6), 898-915. DOI: 10.1177/1367877920911923.

- Ioannides D and Debbage K G (1998) Neo-Fordism and Flexible Specialization. London: Routledge, 99–138.
- Jitsumpun P and Muneeman U (2021) Can tour guides protect the marine and coastal environment from mass tourism impacts: situation of Andaman Ocean, Thailand, Pre-covid-19. *Geojournal of Tourism and Geosites*, 39(4) Spl., 1325-1330.
- Komorowski J and Holderna-Mielcarek B (2019) Mass Tourism and Overtourism in Polish Agglomerations. Poznan and Wroclaw Case Studies. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 63(9), 68-78. D
- Kroes R (2020) Present-Day Mass Tourism: Its Imaginaries and Nightmare Scenarios *Soc* 57, 385-391. DOI: <https://doi.org/10.1007/s12115-020-00499-y>
- Li X, Boley B and Yang F (2022) Empowerment and its divergent influence over mass and alternative tourism. *Wiley- International Journal of Tourism Research*, 24, 786-799.
- Naumov N and Green D (2016) Mass tourism. In: Jafari J and Xiao H (eds) *Encyclopedia of Tourism*. Springer, Cham. Available at: https://doi.org/10.1007/978-3-319-01384-8_378
- OED - Oxford English Dictionary (2008) Oxford: Oxford University Press.
- Orellana K (2022) What is overtourism... and how can we prevent it? *Solimar International*. Available at: <https://www.solimarinternational.com/what-is-overtourism-and-how-can-we-prevent-it/>.
- Poon A (1993) *Tourism, technology and competitive strategies*. Wallingford, Oxon: CAB International. ISBN: 9780851987514.
- UNEP – United Nations Environment Program. Available at: <https://www.unep.org/explore-topics/resource-efficiency/what-we-do/responsible-industry/tourism>.
- UNWTO (United Nations World Tourism Organization); Centre of Expertise Leisure, Tourism & Hospitality; Breda University and Stenden University of Applied Sciences. (2018) *“Overtourism”? – Understanding and Managing Urban Tourism Growth beyond Perspectives, Executive Summary*,
- Vainikka V (2013) Rethinking Mass Tourism. *Tourist Studies*, 13(3): 268-286.

Olive oil tourism in Beira Interior Region – the actual supply

Maria Lúcia Pato. *Escola Superior Agrária (ESAV) e CERNAS-IPV Centro de Investigação, Instituto Politécnico de Viseu (IPV), Viseu, Portugal, mljesus@esav.ipv.pt*

Abstract

Purpose: Olive oil tourism is a recent type of tourism that is developed in rural areas, specifically in regions with traditional production of olive oil. It intersects other types of tourism, namely rural tourism, wine tourism and gastronomic tourism. Considering that it is a relevant type of tourism that promotes rural development, the purpose of the study is to observe its potential in the Protected Denomination Origin (PDO) of olive oil of the Beira Interior Region (BIR).

Methodology: In a first phase, based on the Portuguese *Direção Geral de Agricultura e Desenvolvimento Rural*, it has been observed all the municipalities that belong to the PDO of olive oil in the BIR. In order to identify evidences of the tourist product (fairs and events, oil mills and oil factories open to visitants, museums, accommodations with olive oil experiences and olive oil routes), in a second phase, was performed a data search on the websites of the all municipalities of the PDO region.

Results: In the BIR fairs and other type of events dedicate to the olive oil are a reality. Apart of these, producers or olive farms with visits are also common in the region. Museums where tourists can observe the traditional way of production of olive oil and immerse in the rural culture can be visited by tourists. Last, but not the least, tourist can also complement this experience, by staying in lodgings that also offer experiences related with olive oil. However, in relation to olive oil routes the information gathered, reveals yet some lack of organization.

Research limitations (if applicable): Based only in an *online* search.

Originality (mandatory): In Portugal the study of olive oil tourism is very incipient. This is one of the first study concerning the thematic, and to the best of our knowledge the only that focuses on the BIR.

Keywords: *Olive oil tourism; Beira Interior PDO region; Portugal; Rural development.*

Acknowledgements: This work is funded by National Funds through the FCT - Foundation for Science and Technology, I.P., within the scope of the project Ref^a UIDB/00681/2020. Furthermore we would like to thank the CERNAS Research Centre and the Polytechnic Institute of Viseu for their support.

1. Introduction

Olive oil tourism, also known as oleotourism, oil tourism or agritourism (Pato, 2024), is a recent type of tourism developed in rural areas (Murgado-Armenteros et al., 2021) that has been progressively evolving for approximately a decade, mainly in mediterranean countries, with a particularly effort in Spain (Pato, 2024). It is observed by a rural product that intersects right away agriculture, tourism, rural culture and gastronomy. As a type of rural tourism it can contribute to the development of the olive grove rural areas (Campón-Cerro et al., 2014; Millán-Vazquez de la Torre et al., 2017), the diversification of the tourism activity in a country (Bezerra & Correia, 2019) and to give to the tourists the possibility to emerge in unique experiences in the rural space (Bezerra & Correia, 2019; Campón-Cerro et al., 2023). An adequate way to promote this form of tourism, is offer an adequate and organized experiences to tourists. Through these they can acquire knowledge concerning this traditional endogenous product (Murgado-Armenteros et al., 2021) and improve this experience.

Portugal is one of the main producers of olive oil (IOC, 2024) and the 4th biggest exporter of olive oil (Almeida & Silveira, 2021). In addition, the quality of olive oil is attested by the presence of Protected Denomination Origin (PDO) regions. In fact, the distinctive character of the production, based on the territory and their culture creates and adds value to these products and gives the product notoriety for its origin associated with the cultural tradition of the place (Pato & Duque, 2023).

The Beira Interior Region (BIR) is one of the six PDO's region of olive oil in Portugal. It is located in the center region of the country and integrates two PDO sub-regions: Beira Alta (BA) and Beira Baixa (BB). Many aspects seem to highlighted the development of this product at the region, although in some dimensions there is some progress to achieve. Since to the best of our knowledge, the research that focuses on olive tourism in the region is incipient, the purpose of this study is to present an overview of the development of the product and their potentialities. In order to do this, was performed a data search on the websites of all the municipalities of the PDO region.

2. Literature Review

As a product of rural tourism, olive oil tourism is an instrument of rural development (Pato, 2024). The activity intersects in fascinating ways, offering a blend of cultural, gastronomic, and agritourism experiences that can benefit rural areas economically, culturally and environmentally. From the very beginning it can lead to the diversification of the rural economy. Indeed, olive oil tourism provides an opportunity for rural communities to diversify their economies by tapping into the growing market for culinary tourism and agritourism experiences (Parrilla-González et al., 2020). Additionally, developing olive oil tourism infrastructure, such as olive grove tours, tasting experiences, and accommodations, creates jobs in rural areas (Pulido-Fernández et al., 2019). These jobs can range from farm workers and tour guides to hospitality staff and artisanal food producers, helping to stem rural depopulation by providing employment opportunities locally. Additionally yet, olive oil tourism can stimulate the production of value-added products such as gourmet olive oils (Dancausa-Millan et al., 2022), flavored oils, olive-based cosmetics, and culinary products. These products not only generate additional revenue for local producers but also attract visitors seeking unique souvenirs and gifts.

From a cultural perspective, since olive oil production often has deep cultural roots in rural areas, with traditions passed down through generations, the product can help to preserve these traditions by showcasing the historical and cultural significance of olive cultivation and oil production (Millán et al., 2018). Additionally, olive oil tourism encourages community involvement and collaboration among local stakeholders, including, restaurants (Millán-Vazquez de la Torre et al., 2017; Murgado-Armenteros, 2013) farmers, artisans, and tourism operators. By working together to promote the region's olive oil heritage, communities can strengthen social bonds and foster a sense of pride in their shared cultural identity (Campón-Cerro et al., 2017).

From an sustainable point of view, many olive oil tourism initiatives promote sustainable agricultural practices, such as organic farming, water conservation, and biodiversity conservation (Millán et al., 2018). By highlighting the importance of environmental stewardship, these initiatives contribute to the long-term viability of rural landscapes and ecosystems.

Overall, olive oil tourism has the potential to promote rural development by leveraging the unique cultural and culinary assets of olive-growing regions, while also fostering sustainable economic growth and community resilience.

3. Methodology

In a first phase, based on the *Direção Geral de Agricultura e Desenvolvimento Rural of the Ministério da Agricultura* (DGADR, 2024), were observed the sub-regions of Beira Interior Region and their municipalities.

The second phase occurred between 2 and 25 April 2024 and consisted of data research on the websites of the all municipalities of the PDO's sub-regions, particularly Beira Alta (BA) and Beira Baixa (BB). In each of this webpage it was search information related with olive oil tourism, particularly: 1) fairs and other type of events related with olive or olive oil, ii) producers or farms related with olive oil open to visitors, iii) oil mill cooperatives or cooperatives of olive oil, iv) museums of olive oil, v) lodgings that offer experiences related with olive oil.

All these information was organized in an excel database. Apart of this information, was also observe the existence of olive routes or gastronomic routes related with olive oil in the aforementioned sub-regions.

In a third phase, this information was complemented with a search in google search engine concerning olive oil tourism in the aforementioned municipalities. Adapted from the work of Almeida and Silveira (2021) were utilized and crossed a list of keywords in Portuguese: “olive oil”, “olive tourism”, “olive oil routes”, “gastronomic routes”, “oil mill”, “factory”, “olive oil cooperative”, “events”, fairs” plus the name of the municipality. In the last phase, the data was analyzed using descriptive statistics measures.

4. Results

In BA sub-region the resources for the promotion of olive oil tourism seem to be emphasize. With the exception of two municipalities of Pinhel and Almeida (with no

available evidences), all the others of the region have evidences of the promotion of olive oil tourism (Table 1).

Table 1: Evidences of olive oil tourism development in BA Sub-Region

Municipalities	Fairs and events	Producers or Olive Farms with Visits	Cooperatives or cooperatives mills	Museums	Lodgings units with olive or olive oil experiences
Meda	NA	NA	NA	NA	Quinta da Corga; Calcaterra Agroturismo
Figueira de Castelo Rodrigo	NA	NA	Escalhão Cooperative / Press Mill	NA	Casa dos Poços - turismo Rural; Quinta Pêro Martins
Guarda	Vale da Teixeira Olive oil Festival; Farta Fair; Pork Festival - Sausage, Wine and Olive Oil Fair	Ethos - Olive Company; Lagar de Herdeiros de Manuel Aleixo da Cruz	Ramos Lagar, Lda; Lagar de azeite da Ramela	Museum Lagar Varadas Estevão Martins da Rocha	Quinta do Pinheiro; Casa dos Poços; Casa de Campo-Quinta dos Sinçais
Celorico da Beira	Olive Oil Festival*	NA	Lagar Municipal de Celorico da Beira; Lagar de azeite Baracal	NA	NA
Seia	NA	NA	Varas mill	NA	Quinta do Vale Sanguinho
Gouveia	NA	NA	NA	NA	Casa Grande
Trancoso	NA	NA	NA	Olive Oil Museum Freches	NA
Manteigas	NA	Casa Agrícola Francisco Esteves	NA	NA	NA
Fornos de Algodres	NA	"Casa do Cabo" olive oil press	NA	NA	NA

Source: Own elaboration

In relation of fairs and events, the BA develops nowadays three fairs: Vale da Teixeira Olive oil Festival; Farta Fair; Pork Festival - Sausage, Wine and Olive Oil Fair. All of them occurred in Guarda municipality, during the months of October, September (2023) and January 2024. Particularly in relation to the olive oil Festival, the event was an opportunity to participate in olive picking, to visit the olive oil press, community ovens and village markets where it was possible to purchase local products such as olive oil and other endogenous products. In the region, it can be found at least four farms or olive oil producers and six cooperatives that accept visits in their spaces. This is indubitably an opportunity to see the olive oil production and to purchase olive oil. But the evidences don't finish here. In the region it can be found two museums (museum lagar Varadas and the olive oil museum of Freches) dedicated to olive oil, where it is possible to see the traditional equipment used and the traditional method of the production of olive oil. Last, but not the least, diverse lodgings that offer experiences related with the thematic of olive oil have been found.

In BB sub-region there are also many evidences of the promotion of olive oil tourism, although five (Mação, Oleiros, Penamacor, Proença à Nova, Sabugal) municipalities in thirteen seem not to have a concrete offer/experience to tourists.

Concerning fairs and events (see Table 2), have been identified four current events: Olive oil and olive fair; Gastronomic festival “Fundão Aqui Come-se Bem” – Festival da Tibórnia; Cod and Olive Oil Festival; Almeirão Festival, New Olive Oil and Homemade Bread. All of them are good ways to promote the excellency of the olive oil and familiar agriculture. In the sub-region it can also be visited diverse farms or other spaces of olive oil production (3) and diverse cooperatives or olive oil cooperatives (4). Museums where tourists can learn about olive oil production, are common in BB sub-region, having the region at least four museums dedicate to the olive oil production. As refer above it is a good opportunity to see the traditional equipment used and the traditional method of the production of olive oil. Last, but not the least in BB region, at least tree rural lodgings that offer experiences concerning olive oil have been identified.

Table II: Evidences of olive oil tourism development in BB Sub-Region

Municipalities	Fairs and events	Producers or Olive Farms with Visitis	Cooperatives or cooperatives mills	Museums	Lodgings units with olive or olive oil experiences
Belmonte	NA	Cadoiço olive oil press; Mill of Maçainhas	NA	Olive Oil Museum	NA
Castelo Branco	Olive Oil Biennial**; Olive Oil and Olive Fair	Centro de Apoio Tecnológico Agroalimentar	NA	Lousa Ethnographic Center; Etnographic museum of “Ninho do Açor”	NA
Covilhã	NA	Lagar 2000 - Commercialization and production of olive oil, Lda	NA	Varas da Erada Mill - Museum	NA
Fundão	Gastronomic festival “Fundão Aqui Come-se Bem” – Festival da Tibórnia	NA	Agricultural Cooperative of Olive Growers of Fundão	NA	NA
Idanha-a-Nova	Festival of Olive Oil and Aromatic Herbs***	NA	Mill of Varas	Olive Oil Museum Center - Lagares Complex	NA
Sertão	NA	NA	NA	NA	Albergue do Bonjardim; O Ninho do Rei
Vila de Rei	Cod and Olive Oil Festival; Almeirão Festival, New Olive Oil and Homemade Bread	NA	Ferrugenta Mill	NA	NA
Vila Velha de Ródão	NA	NA	Varas Olive Oil Press	Sarnadas de Ródão Olive Oil Museum Space	Herdade da Urgueira

Source: Own elaboration

Apart of all these evidences, have been identified in the BIR tree olive oil routes: i) Beira Interior Olive Oil route (BIOOR); ii) Beira Baixa Olive Oil Route (BBOOR) and iii) PR7 – oil mills route. The BIOOR integrates 15 municipalities (11 of BA sub-region and 4 of BB sub-region).

The BIOOR is managed by the Portuguese *Comunidade Intermunicipal Beiras e Serra da Estrela* (CIMBSE), which proposes a visit of one day. In their guide can be found information concerning the type of olive oil of Beira Interior, the mention of a PDO olive oil, spaces to visited, activities related with the production and consumption of olive oil, spaces to buy and taste and the indication of some producers (according CIMBSE, s.d.). However, it is not clear the number of adherents of the route and the geographic circuit that can be visited by tourists.

The BBOOR, integrates six municipalities (one municipality of BA sub-region and five municipalities of BB sub-region). The route is managed by the *Portuguese Comunidade Intermunicipal da Beira Baixa* (CIMBB), which proposes the visit during three days. In their guide, it can be found information concerning the olive oil of Beira Baixa and the mention of the PDO olive oil, following the different experiences and activities in each of the three days. The guide also present a list of experiences that the tourists can have, the indication of restaurants and places to buy olive oil (according CIMBB, s.d.-a). However, it is also not available the number of adherents of the route.

The PR7 – oil mills route, is a circular route that offers the opportunity to visit the old oil mills, traditionally known as *Lagares de Varas* in the Alameda parish in Castelo Branco municipality (CIMBB, s.d.-b). It is mainly a cultural tour, visiting ancient remains of olive oil mills. It is managed by the municipality of Castelo Branco.

5. Discussion

The aforementioned results permit some considerations in BIR and each sub-regions. In general, in BIR exists a lot of experiences that tourists can take concerning olive oil tourism and related products. Olive oil tourism and all the products/services than can

be sprout from here, are an opportunity to enrich regional offer and help to maximize other products related to the interior rural economy (Bezerra & Correia, 2019).

Concerning BA sub-region, the offer reaches greater notoriety in the municipality of Guarda, which offers touristic experiences related with olive oil in fairs and other events, farms and other producers of olive oil, cooperatives/mill cooperatives, museums and lodgings accommodations.

The result of this offer is a junction of the support of some private initiates (particularly in the case of farm producers and lodgings units with olive oil experiences) with public entities (in the case of the presence of museums).

Concerning the BIOOR (which integrates all the municipalities of the sub-region BA), it seems that an additional effort should be done in terms of its promotion, organization and development. Indeed, it is not clear the itinerary that can be followed by tourists and the supply agents that belong to them.

Concerning BB sub-region, the results seem to suggest a bigger effort of the stakeholders of the same. Particularly, it is visible the major effort in the realization of fairs and other type of events and the presence of museums which try to preserve the tradition and the ancient culture of the production of olive oil. Although, unlike in the BA region, in BB sub-region, it is not found any municipality with all the evidences of the development of olive oil tourism. However, the development of the olive oil route of BB seems to have more notoriety. The CIMBB has in the guide of the route the itinerary of visits in each of the three days. But as in the case of the BIOOR, no information concerning the number of supply agents are available.

Based on the aforementioned BIR fragilities in order to promote olive oil tourism in an integrated manner, the main highlights are resumed as:

- Lack of clear information on the current supply, particularly in the case of visitable production spaces, cooperative mills and museums;
- Lack of articulation and partnerships with stakeholders (cooperatives, lodgings, museums, others) to promote olive oil tourism as a relevant product in the region;
- Lack of promotion of the olive oils routes and their members.

This is not a manifest against all the effort that have been realized in the region concerning olive oil tourism, but a call for all its potentialities, towards the region rural development purpose.

6. Conclusion

The present paper is an exploratory study concerning the offer related with olive tourism in BIR – one of the six PDO's of olive oil in Portugal. An online search based on all the municipalities of the region, suggest that some efforts to develop the product are already been launched. In BA and BB sub-regions can be found diverse experiences related with the olive oil and the olive tree. The offer includes: fairs and other events of olive oil and local products, experiences in spaces of production (e.g. olive mills), experiences in museums or lodgings accommodations, among other.

Anyway, unlike other countries such as Spain, with a major effort on the sector (Pato, 2024), in Portugal a lot of fragilities to develop the product are pointed out. Problems related with the newness of the rural product (Pato, 2024), but also with some lack of articulation between stakeholders and promotion of the offer in an integrated way have influence on this fact.

From a practical point of view, in order to promote olive oil tourism in an integrated manner and in sustainable way, more partnerships and cooperation among stakeholders are needed (Hernández-Mogollón et al., 2019).

In the future it would be interesting complement the present results with the development of empirical study in the field.

References

- Almeida, I., & Silveira, L. (2021). Olive-oil tourism in Portugal. *Revista Turismo & Desenvolvimento*, 36(2), 153-165.
doi:<https://doi.org/10.34624/rtd.v36i2.23289>
- Bezerra, R., & Correia, A. I. (2019). The potential of olive oil for creative tourism experiences in the northern region of Portugal. *Revista Portuguesa de Estudos Regionais*, 51, 55-72.
- Campón-Cerro, A. M., Di-Clemente, E., Hernández-Mogollón, J. M., De Salvo, P., & Calzati, V. (2014). Olive oil tourism in southern Europe: Proposals for tourism

- development of olive grove rural areas. *Turismo & Desenvolvimento*, 21(22), 63-73.
- Campón-Cerro, A. M., Di-Clemente, E., Hernández-Mogollón, J. M., & Folgado-Fernández, J. A. (2023). Olive oil tourism experiences: Effects on quality of life and behavioural intentions. *Journal of Vacation Marketing*, 29(3), 348-364.
- CIMBB. (s.d.-a). Rota do Azeite da Beira Baixa. Retrieved from https://turismodocentro.pt/wp-content/uploads/2023/03/Rota-do-Azeite_Beira-Baixa.pdf
- CIMBB. (s.d.-b). Trails and Routes. Retrieved from <https://beirabaixatour.pt/home/en/pr7-rota-dos-lagares-almaceda/>
- CIMBSE. (s.d.). Rota do Azeite da Beira Interior. Retrieved from <https://www.visiteserradaestrela.pt/pt/itineraries/sensations-flavours/rota-do-azeite-da-beira-interior>
- Dancausa-Millan, G., Millán-Vázquez de la Torre, M. G., & Huete-Alcocer, N. (2022). Olive oil as a gourmet ingredient in contemporary cuisine. A gastronomic tourism proposal. *International Journal of Gastronomy and Food Science*, 29, 100548. doi:<https://doi.org/10.1016/j.ijgfs.2022.100548>
- Hernández-Mogollón, J. M., Di-Clemente, E., Folgado-Fernández, J. A., & Campón-Cerro, A. M. (2019). Olive oil tourism: state of the art. *Tourism and hospitality management*, 25(1), 179-207.
- IOC. (2024). The world of Olive Oil. Retrieved from <https://www.internationaloliveoil.org/the-world-of-olive-oil/>
- Millán-Vázquez de la Torre, M. G., Arjona-Fuentes, J. M., & Amador-Hidalgo, L. (2017). Olive oil tourism: Promoting rural development in Andalusia (Spain). *Tourism Management Perspectives*, 21, 100-108. doi:<https://doi.org/10.1016/j.tmp.2016.12.003>
- Millán, M. G., Pablo-Romero, M. D. P., & Sánchez-Rivas, J. (2018). Oleotourism as a Sustainable Product: An Analysis of Its Demand in the South of Spain (Andalusia). *Sustainability*, 10(1), 101.
- Murgado-Armenteros, E. M., Parrilla-González, J. A., & Medina-Viruel, M. J. (2021). What does the olive oil tourist value at the destination? A criterion for olive oil tourism segmentation. *International Journal of Gastronomy and Food Science*, 25. doi:10.1016/J.IJGFS.2021.100378
- Parrilla-González, J. A., Murgado-Armenteros, E. M., & Torres-Ruiz, F. J. (2020). Characterization of Olive Oil Tourism as a Type of Special Interest Tourism: An Analysis from the Tourist Experience Perspective. *Sustainability*, 12(15), 6008.
- Pato, M. L. (2024). A Decade of Olive Oil Tourism: A Bibliometric Survey. *Sustainability*, 16(4), 1665.
- Pato, M. L., & Duque, A. S. (2023). Traditional agri-food products and sustainability– A fruitful relationship for the development of rural areas in Portugal. *Open Agriculture*, 8(1), 20220157.
- Pulido-Fernández, J. I., Casado-Montilla, J., & Carrillo-Hidalgo, I. (2019). Introducing olive-oil tourism as a special interest tourism. *Heliyon*, 5(12).

Sustainable Development Goals and Business Sustainability in Tourism– exploratory insights

Elisabete Silva. Bachelor in Psychology. Pos-graduate in Sustainable Tourism and Well Being - IPBeja. Portugal. 14245@stu.ipbeja.pt

Susana Galrito. Bachelor in Mathematics Applied to Computation – Probability and Statistics. Pos-graduate in Sustainable Tourism and Well Being - IPBeja. Portugal. 6189@stu.ipbeja.pt

Marta Amaral. PhD in Tourism. Assistant Professor in Polytechnic Institute of Beja; Department of Business Science. CiTUR (Centre for Tourism Research Development and Innovation). Portugal. marta.amaral@ipbeja.pt

Abstract

Purpose: In recent years, there has been a growing interest from tourism sector companies in the implementation of sustainable management practices that combine economic growth with nature preservation and social responsibility measures, to ensure true sustainability of their enterprises. The purpose of this study is to understand how the management practices adopted by companies in tourism sector can contribute to the fulfillment of Sustainable Development Goals (SDGs). In this work, it is proposed to analyze the sustainability practices in small-scale accommodations, assuming as a reference to sustain future business project.

Methodology: Based on research developed in a post-graduation academic project, tourism companies were taken as case studies to explore if their management is aligned with SDGs. In a qualitative methodological approach, a literature search was used to support theoretical framework, and benchmarking technique to prepare a comparison, in this initial phase, between two tourism companies based on the standard of geographical location (Baixo Alentejo); subsector (local and rural accommodation) and Biosphere certification.

Results: After the analysis of different SDGs to which they attend, selected companies had sustainable practices, although the degree of awareness and execution of these practices were relatively consistent.

Research limitations: This is an ongoing investigation, and after the initial exploratory phase based only in 2 examples, next phase is to move towards a broader approach to a more representative number of selected projects in Alentejo's region.

Originality: This study aims to present an exploratory and ongoing view to demonstrate the importance of sustainable management practices for tourism companies in the Alentejo region.

Keywords: Sustainable Management; Tourism; Sustainable Development Goals; Accommodation.

Acknowledgements: This work is financed by National Funds, FCT – Foundation for Science and Technology, through the Project Ref. UIDB/04470/2020 CiTUR.

1. Introduction

Environmental degradation has become one of the greatest global challenges, which is why companies, largely under pressure from society, feel the need to adopt innovative policies and procedures that allow them to achieve economic benefits but, at the same time, are consistent with nature conservation, environmental protection (Li et al., 2017) and the promotion of social practices.

Tourism is a global and multidimensional phenomenon, and the importance of this sector has demonstrated as a driver of economic and social development is undeniable, being classified as one of the most important “industries” worldwide and responsible for the creation of countless jobs. Its contribution to sustainable development cannot therefore be underestimated. In this context, there has been a growing interest on the part of companies in the tourism sector to adopt sustainable management practices that combine economic growth with nature conservation and preservation of nature and social responsibility measures in order to guarantee the true sustainability of their businesses.

Among the most common practices are new management models, opting for a more participative management of all stakeholders, promoting collaborative networks; adopting new styles of leadership and management styles; using innovative procedures, promoting entrepreneurship and business development; publicizing their good practices, using marketing techniques to encourage companies, customers, and other stakeholders to adopt these practices.

Most studies on this topic are more focused on the hospitality subsector and large hotel chains (Khatter et al., 2019), which is why it was decided in this initial research decided to use small accommodation businesses as a case study. It is important to understand how the management practices of businesses in the tourism sector can contribute to the achievement Sustainable Development Goals (SDG). In this article, it is proposed to analyse sustainability practices in accommodation companies using examples of small-scale businesses (local and rural accommodation), located in Baixo

Alentejo. It is intended to be used as an example to support the development of a sustainable local accommodation company.

2. Literature Review

2.1. Business sustainability and management

Sustainability has always been considered an ecological concept and is still little known in management studies. However, it has recently been adopted by companies seeking answers to questions related to environmental legislation and principles of social responsibility (Fiksel et al., 2004, cited by Agostinho, 2014). This concern, also known as corporate sustainability, is considered to be highly relevant to business success, with some empirical studies showing positive correlations between these two factors (Agostinho, 2014).

According to Dias (2009, p. 1) business sustainability is a reality that is accepted by the different stakeholders in business management and analysis, and it is extremely relevant for the survival and competitiveness of companies in long term; it is also an essential factor for achieving success. In the business world, investment in sustainable policies and practices has gained strength and companies that develop actions based on environmental preservation gain a positive image among consumers, thus ensuring a competitive advantage (Santos, 2021).

Corporate sustainability, as sustainable development applied to companies, is seen as an evolutionary, creative and systemic process, which is increasingly supported by consumers and investors, and which proclaims itself as a "paradigm shift" in the market economy, taking into account social and environmental factors in decision-making (Dias, 2009). For a company to be considered sustainable, it must consider the impact of its activities on the environment, seek to reduce it and develop social actions that benefit both its employees and society (Azevedo, 2006, cited by Agostinho, 2014).

Sustainable management describes both the activity of managing sustainability issues in organisations and is often used to describe the group or decision-makers who carry out sustainability management activities. Sustainability managers, sometimes referred

to as corporate responsibility managers, are those employees or managers in a company who are responsible for organising social and environmental activities in line with the company's strategic and business objectives. (Schaltegger, 2013).

2.2. Sustainable Development Goals

The 2030 Agenda aims to promote sustainable development by monitoring and controlling the use of natural resources, promoting conservation activities, creating employment opportunities for local communities, promoting endogenous cultures and products, maximising economic benefits and contributing to minimising the degradation of natural resources (Ferreira, 2023). This new United Nations agenda, which has established a common language for all stakeholders, is an action plan focused on people, planet, prosperity, peace and partnerships. The integration of the 2030 Agenda into national strategies, plans and policies is articulated by thematic areas identified by the principles listed and denoted by the 5Ps: (i) people (SDG 1; SDG 2; SDG 3; SDG 4; SDG 5; SDG 6); (ii) prosperity (SDG 7; SDG 8; SDG 9; SDG 10); (iii) planet (SDG 11; SDG 12; SDG 13; SDG 14; SDG 15); (iv) peace (SDG 16); and (v) partnerships (SDG 17) as showed at Figure 1 above.

Figure 1: 17 Sustainable Development Goals



Source: Comissão Nacional da UNESCO (2024)

2.3. Sustainable Management Practices and SDGs in Tourism Sector

Tourism plays a significant role in the global economy, generating significant income from the various activities related to this sector, which currently represents a strong catalyst for economic development (Rodríguez-Anton et al., 2012 cited by Silva &

Ferreira, 2021). This sector moves resources and people around the world; on the other hand, it generates negative environmental impacts that can ultimately compromise or make certain tourist destinations unviable. In this scenario, sustainable tourism emerges as an alternative to guarantee responsible exploration and to perpetuate tourist destinations for new generations (Cunha & Jesus, 2020). For Almeida and Abranja (2009) the interpretation of sustainable tourism is related to the environment, cultural identity, economy and society.

According to Lenzen et al. (2018, cited by Silva & Ferreira, 2021), tourism is a major contributor to CO₂ emissions, with the global carbon footprint accounting for approximately 8% of global greenhouse gas emissions (from tourism activities such as transport, food, commerce and accommodation). The hotel industry in particular consumes significant amounts of energy, water and non-durable products due to the nature of its functions, characteristics and services (Erdogan & Baris, 2017). This industry has been under increasing pressure to pay adequate attention to environmental issues. As a result, some managers now understand that long-term economic sustainability and growth depend on the nature of their environmental policies.

The sector has recognised the importance of environmental quality (quality of natural features) as an element that promotes survival and as a factor that affects the competitiveness of tourist destinations (Mihalič, 2000). Tourism also deals with increasingly conscious customers and has to face government regulations, environmental agencies, stakeholders, employees and competing businesses to implement green policies and sustainable innovations (Silva & Ferreira, 2021).

Tourism consumers value quality and are looking for intense and genuine experiences and emotions. They demand more diverse and active holidays and tourism that is best suited to individual needs. They are also more educated and demanding, with greater awareness and concern for sustainability (Silva, 2013). Therefore, environmental goals and practices need to be integrated into current management strategies and methods in order to remain competitive in the tourism market (Mihalič, 2000).

According to Almeida and Abranja (2009), there are five fundamental issues for sustainable tourism management: (i) educating tourists to use and protect local

resources; (ii) protecting natural areas and encouraging visitors and residents to do the same, so that they realise the local importance of the tourism/environment symbiosis; (iii) generating income to enable the protection of tourism resources, creating more jobs and higher incomes for local people; (iv) involving all stakeholders, so that they feel that tourism is part of them; (v) quality of the tourism experience, in terms of good practice and sustainable tourism policies.

Although the tourism sector has the potential to contribute to all 17 SDGs, measuring its impact remains a challenge, as there is a lack of universal standards against which businesses and destinations can measure and monitor their development (Ferreira, 2023).

3. Methodology

This paper is based on a first investigation presented in an academic postgraduate course project, laying the foundations for a future own accommodation business in the same region. Using a qualitative methodological approach, literature research was used to support the theoretical framework and the benchmarking technique was used with the aim of developing, even at this initial stage, a comparison between 2 small tourism enterprises, based on the criteria: (i) geographical location (Baixo Alentejo); (ii) subsector and typology (local accommodation; rural accommodation); and (iii) Biosphere certification. Biosphere certification is an international system developed by the Institute for Responsible Tourism, through a set of norms/standards that establish specific, identifiable, and measurable objectives. It is the first certification to respond to the 17 SDGs (Turismo de Portugal, 2024).

The general objective was to analyse the sustainability practices of small-scale local and rural accommodation, and to explore whether their management is in line with the SDGs. It is intended to be used as an exploratory example, with the future aim of extending the study to all accommodation of this type (excluding hotels) and supporting the development of a sustainable local accommodation sector. The identification and selection of accommodation businesses was based on the Biosphere website and a (still) exploratory collection of data on sustainable

management strategies and practices through indirect observation of websites and news published on the internet.

4. Results e Discussion

Here are some characteristics of selected companies, based on a search carried out on their websites:

Local Accommodation “Casa Calmaria” (Company 1) - The project started in 2019 and is a local accommodation located in the centre of Beja. The focus on sustainability was a natural choice for its owner, who decided to renovate a house respecting all the architectural structure both front and interior of the building (this fact makes it impossible to adapt the house to people with reduced mobility). In the website we can see that its mission is based on "promoting sustainable tourism in Baixo Alentejo, promoting experiences for visitors that develop and respect the local community; offering a charming, welcoming and innovative stay in the historic centre of Beja; integrating sustainable development objectives; raising awareness among visitors and the local community about the preservation of the region's heritage", guided by the values of "sharing and partnerships", "sustainable tourism", "respect for the local community" and "social responsibility". Casa Calmaria has 3 apartments, all decorated with local handicrafts and reclaimed furniture. All apartments have a fully equipped kitchen and many amenities. It is Biosphere certified.

Rural Tourism Accommodation “Burraco d’Orada” (Company 2) - This is a rural tourism unit (with tourist entertainment activities), located in Mina da Orada. In the website we can see that its mission is supported in expressions such as "tranquility of the interior of Baixo-Alentejo", and the desire of its owners is "to make those who visit us forget time and appreciate the best that Alentejo has to offer, genuineness, authenticity, familiarity, simplicity, sympathy and peace". The company also emphasises sustainability in its mission and values that: "We therefore give our best for nature and for our customers, we put into each visit & experience: generosity, authenticity of good reception in Alentejo, always on a sustainable basis". In terms of accommodation, there are 3 eco-houses: Casa da Rita, Casa das Oliveiras and Casa

da Mina. In terms of tourist experiences, most are exclusively for guests staying in the lodgings and include local wine tastings, snacks, typical lunches, boat trips and harvesting experiences. There is the possibility of tailor-made experiences and nature sports activities, private tours, private workshops in Portuguese cuisine, vegetarian, handmade soaps, etc. Cultural visits to local wineries and cheese factories are also offered. Company has several certifications: Clean & Safe Stamp, Gay Friendly and Biosphere Certification.

With the general objective of carrying out a comparative analysis of sustainable practices for two selected companies, and at this stage of the investigation, the measures presented by Biosphere were grouped according to the dimensions of the sustainability triple bottom line (TBL) and the areas of greatest relevance. TBL is a model developed by Elkington in 1997, which represents the extension of the traditional business model (which only considered economic aspects) to one that now considers environmental and social factors in addition to the financial component (Benites & Polo, 2013).

As a result, and in view of the characteristics of these small enterprises, the following observations are of particular relevance in terms of sustainability:

Company 1 – (i) water consumption (reduction and efficiency of water consumption, reuse of water in facilities, implementation of information and awareness campaigns on cleanliness and responsible use of water, concern for the quality and cleanliness of its water systems); (ii) sound waste management, implementing a 6R policy (repair, reuse, refuse, recycle, rethink, reduce) (iii) reuse of furniture and decorative materials, promotion of sustainable mobility; (iv) use of biodegradable products; (v) promotion of cultural and natural heritage; (vi) promotion of local traditions and cuisine; (vii) exchange of good practices; (viii) training of the work team; (ix) choice of local suppliers and products; (x) attempt to avoid food waste; (xi) support of local businesses.

Company 2 – (i) implementation of environmentally sustainable management practices, with awareness campaigns on energy use, prioritising the use of green and more renewable energy sources; (ii) adoption of energy efficiency measures in facilities; (iii) monitoring and management of its waste and impact, promoting the 3Rs

(reduce, recycle and reuse); (iv) promotion of sustainable mobility; (iv) promoting sustainable mobility; (v) carrying out actions to raise awareness and protect marine ecosystems; (vi) promoting a more sustainable use of marine resources, particularly in the activities carried out in Alqueva; (vii) seeking to avoid the degradation of ecosystems and terrestrial habitats, reducing the impact of its activities on biodiversity; (viii) providing information on the natural resources of the area, carrying out activities that respect the natural heritage and local fauna, among others. In the social dimension, they (i) collaborate with social programmes and projects; (ii) promote the adoption of healthier lifestyles and habits; (iii) promote quality employment through local recruitment and training of employees; (iv) promote knowledge of sustainable development through the dissemination of good practices. From a more economic point of view, they (i) prioritise and promote the use of local products, especially agricultural products; (ii) try to avoid food waste, establish agreements and partnerships with other local businesses, and promote the development and socio-economic growth of the territory.

Considering alignment with SDGs by certified companies, only SDGs are presented in which Biosphere considers having a more prominent performance. In presented cases, analysis was based on the reported practices.

Companies 1 and 2 have actions across all SDGs, but it was decided to highlight only those that were considered most relevant, and those that received a 'notable contribution' mention. Thus, Company 1 stands out in SDGs 4, 6, 3, 8, 9, 11 and 12, reflecting its interest in water quality, the circular economy, decent work, health and education, sustainable communities and innovation. Company 2 stands out for its fulfilment of SDGs 1, 4, 7, 14, 6, 8, 9 and 15, reflecting a significant commitment at the environmental and social levels.

5. Conclusion

The principles underlying the sustainable development of tourism have gradually been incorporated into the behaviour of the various stakeholders involved in tourism in order to reduce its impact on the environment and society. Many of the advances observed

have been reinforced by the 2030 Agenda, through the commitment of the tourism sector to participate in 17 SDGs. At the national level, the sustainable development of tourism activities has been considered as a plan and strategic factor to position Portugal as one of the most sustainable destinations in the world. In fact, sustainability in tourism tends to stop being an option and becomes a competitive necessity, as it plays a preponderant role in promoting the environmental quality of tourism destinations. In addition, sustainability issues are perhaps the greatest challenge facing humanity, and not just for the tourism sector.

After analysing the SDGs and taking as a reference the three dimensions of the TBL model to which the accommodation companies respond, it can be seen that the two cases present sustainable practices, revealing a conscious and responsible strategy that is even directly verbalised in their mission and values. As companies certified by Biosphere, their practices are clearly in line with the certification requirements and a large number of the 17 SDGs, despite being small businesses and the size of the structures and facilities offered by the accommodation itself.

References

- Agustinho, A. (2014). *Sustentabilidade Empresarial: uma análise das consequências*. [Tese de Mestrado, Instituto Superior de Gestão]. <https://comum.rcaap.pt/bitstream/10400.26/9419/1/Ana%20Agustinho%20-%20Tese.pdf>.
- Almeida, I., & Abranja, N. (2009). Turismo e sustentabilidade. *COGITUR: Journal of Tourism Studies*, 2, 15-31. <http://hdl.handle.net/10437/1874>.
- Benites, L., & Polo, E. (2013). A Sustentabilidade como ferramenta estratégica empresarial: governança corporativa e aplicação do Triple Bottom Line na Masisa. *Revista de Administração da Universidade Federal de Santa Maria*, 6, 827-841. <https://www.redalyc.org/pdf/2734/273428928002.pdf>.
- Biosphere Sustainable. (2024, April 12). <https://www.biospheresustainable.com/pt/page/59/sobre-nos>
- Casa Burrico D'Orada. (2024, Abril 8). <https://www.burricodorada.com/>
- Casa Calmaria. (2024, Abril 8). <https://casacalmaria.com/>
- Comissão Nacional da UNESCO. (2024, Abril 8). <https://unescoportugal.mne.gov.pt/pt/temas/objetivos-de-desenvolvimento-sustentavel/recursos-ods>
- Cunha, D., & Jesus, G. (2020). Turismo Sustentável: uma breve revisão sistemática. *Anais do Fórum Regional de Administração 2020* (pp.138-146). https://www.unirios.edu.br/eventos/forumadm/anais/arquivos/2020/turismo_sustentavel.pdf

- Dias, A. (2009). O Relato da Sustentabilidade Empresarial: Evidência empírica nas empresas cotadas em Portugal. [Dissertação de Mestrado em Contabilidade e Auditoria, Universidade Aberta].
- Erdogan, N., & Baris, M. E. (2007). Environmental Protection Programs and Conservation Practices of Hotels in Ankara, Turkey. *Tourism Management*, 28(2), 604-614.
- Ferreira, D. (2023). A Atividade Turística e os Objetivos de Desenvolvimento Sustentável. [Relatório de Estágio do Mestrado em Turismo Território e Patrimónios. Universidade de Coimbra: Faculdade de Letras, Departamento Geografia e Turismo]. <https://hdl.handle.net/10316/111748>
- Khatteer, A., Mcgrath, M., Pyke, J., White, L., & Lockstone-Binney, L. (2019). Analysis of hotels' environmentally sustainable policies and practices. *International Journal of Contemporary Hospitality Management*, 31(6), 2394-2410. https://vuir.vu.edu.au/39193/6/Analysis_of_hotels_environmental_sustainable_policy_sVU.pdf
- Li, D., Zheng, M., Cao, C., Chen, X., Ren, S., & Huang, M. (2017). The impact of legitimacy pressure and corporate profitability on green innovation: evidence from China top 100. *Journal of Cleaner Production*, 141, 41-49. <https://doi.org/10.1016/j.jclepro.2016.08.123>.
- Santos, J. (2021). Análise dos Pilares da Sustentabilidade Corporativa nas Organizações Públicas Municipais e o seu Impacto no Desempenho: um estudo de caso de Goiânia. [Dissertação de Mestrado em Gestão de Empresas. Universidade Autónoma de Lisboa. Lisboa]. <http://hdl.handle.net/11144/5262>.
- Schaltegger, S. (2013). Sustainability Management. In S. Idowu, N. Capaldi, L. Zu & A. Gupta (Eds.), *Encyclopedia of Corporate Social Responsibility* (pp.2384–2388). Springer. https://doi.org/10.1007/978-3-642-28036-8_741
- Silva, F. A. (2013). Turismo na natureza como base do desenvolvimento turístico responsável nos Açores. [Dissertação de Doutoramento em Geografia. Universidade de Lisboa - Instituto de Geografia e Ordenamento do Território]. <http://hdl.handle.net/10451/8742>
- Silva, S., & Ferreira, L. (2021). Turismo e desenvolvimento sustentável. Uma avaliação exploratória das práticas hoteleiras no concelho de Bragança, Portugal. *Revista de Geografia e Ordenamento do Território*, 21, 235-262.
- Turismo de Portugal. (2024, April 16). Biosphere: <https://business.turismodeportugal.pt/SiteCollectionDocuments/portuguese-trails/apresentacao-webinar-praticas-sustentaveis-programas-responsaveis-jun-2020-biosphere.pdf>

Sustainable Management in Tourism – preliminary insights about Events in Portugal

Alexandra Brás. Bachelor in Tourism, Territory and Patrimony. Bachelor in journalism and communication. Pos Graduate in Sustainable Tourism and Well Being– IPBeja. Portugal. 25610@stu.ipbeja.pt

Rita Caldeira. Bachelor in Tourism. Master in Tourism and Development of Destinations and Products. Pos Graduate in Sustainable Tourism and Well Being– IPBeja. Portugal. 26071@stu.ipbeja.pt

Marta Amaral. PhD in Tourism. Assistant Professor in Polytechnic Institute of Beja; Department of Business Science. CiTUR (Centre for Tourism Research Development and Innovation). DOI <http://doi.org/10.54499/UIDB/04470/2020>. Portugal. marta.amaral@ipbeja.pt

Abstract

Purpose: It is assumed that organizations can take advantage of the guidelines of the 2030 Agenda and have SDGs and Triple Bottom Line Model (TBL) as a reference, by adopting sustainable policies and practices contributing to the use of sustainable models, with clear benefits for their business (UNWTO, 2024a.).

Tourist events place the participants at the center of new emotions and experiences (Getz, 2010) and the concern of social responsibility in terms of sustainability, based on the TBL, occupies a prominent place among events (Festivals).

The purposes of this paper are: i) To present case studies of tourism businesses that fit into good practices of sustainable management, opting for tourism events (festivals); ii) To analyze sustainability management practices, considering TBL dimensions using comparative terms.

Methodology: Based on an investigation developed in a post-graduate course project's report in Sustainable Tourism and Well-Being, research presents a qualitative and exploratory approach (on going) based on the analysis of case studies - using benchmarking technique - considered as "good practices" of sustainable management and practices of tourist events (festivals). It was assumed as selection criteria, awarded tourist Portuguese events.

Results: After the analysis of TBL dimensions selected events presented sustainable practices, although the degree of awareness and implementation of these were quite different.

Despite the environmental measures that are being taken by these festivals, we understand that they continue to need an increase, particularly in terms of spaces regeneration, with their forestation. Nevertheless, there is a clear work developed with the aim of promoting sustainable practices that involve participants, as essential elements for the achievement of objectives with a responsible nature.

Originality: This is work that is still in its initial and exploratory phase, and whose results, although preliminary, can contribute to the awareness of sustainable practices in event management, whatever their size and type, in Alentejo.

Keywords: *Sustainable Management; Tourism; Events; Festivals; Triple Bottom Line; Sustainable Development Goals.*

Acknowledgements: This work is financed by National Funds, FCT – Foundation for Science and Technology, through the Project Ref. UIDB/04470/2020 CiTUR.

1. Introduction

Sustainability in tourism is a path taken, in a growing awareness, by agents in the sector, at a global level. The needs of visitors, the sector and communities are considered, as well as their environmental, economic and social impacts in the present and future (Turismo de Portugal, 2023).

It is assumed that companies need to adopt sustainable business policies and practices, contributing to the use of sustainable models within framework of the guidelines recommended in the 2030 Agenda. Sustainable Development Goals (SDGs) can thus be used as an overarching framework when linked to sustainable (business) initiatives, operations and corporate social responsibility strategies (UNWTO, 2024a). Improving the well-being of individuals, protecting the natural environment, activating economic advancement, and promoting international harmony are fundamental objectives that form the essence of Tourism. To this end, sustainable management oriented towards the SDGs is essential, currently revealing that sustainable tourism is a trend in the sector.

“Events are seen as a competitive factor not only because of the potential to attract visitors, but also because of the ability to encourage and motivate satisfied tourists to spend more money, which results in a significant economic impact of events in the particular sector and the economy in general” (Boyatos et al., 2017; Kelly and Fairley, 2018 cited in Teixeira, et al, 2019, p. 943).

According to the Guide for Sustainable Events (BCSD Portugal), events, despite bringing great benefits to the community and territory where they occur (e.g. development of the local economy; hiring local suppliers and staff from the local community; stimulating employability; and training with new skills of local employees), they also bring serious problems (when not adequately planned) such as, production

of waste and pollution; congestion; excessive energy use; and use of plastic in catering.

Hence the power, size and influence of this industry, it can contribute significantly to Sustainable Development if, in all events, sustainability is a condition in its planning and a principle in decision-making and action. (<https://www.bcsdportugal.org/>)

The objectives of this work were: (i) To present case studies of tourism businesses that fit into good practices of sustainable management, opting for leisure, art and entertainment tourism events (festivals); (ii) Analyze sustainability management practices, considering TBL dimensions, using comparative terms.

2. Literature Review

2.1. Corporate sustainability and sustainable management

Corporate sustainability is defined as actions that organizations develop to promote social programs and reduce environmental impacts, keeping them economically viable and responding to stakeholders' interests (Paz et al, 2015). Search for sustainability by enterprises is financially viable and can contribute to reduce costs, to increase revenues and to be perceived as competitive, offering greater efficiency and gains through innovation (Tavares, 2023).

Concept of sustainable management arises in a natural evolution from a traditional model that had become obsolete in face of real demands, in a context of great global pressure, mainly considering environmental terms. It is based on a model that respects sustainable development principles and needs to align its strategies on the concept of sustainability (Scherer et al, 2019).

Sustainable management practices include environmental, economic and social management, which result in clear competitive advantages for companies through environmental practices, implementation of cost reduction and differentiation strategies (Scherer et al, 2019; Porter, 2004 cited by Paulo 2022).

The benefits of implementing a sustainable management by companies include (Oshoa & Delmoro, 2024): (i) For business, strengths the brand and attract investors; reduces production costs; (ii) For society, company starts to act as an agent of social

change. (iii) For environment, it reduces the use of natural resources and generation of waste; reduces environmental impacts of organization's activities.

In order for organizations better implement sustainability, they must meet five principles (Oliveira et al. 2012, cited by Paz et al., 2015): i) Encourage the voluntary initiative of the organization's professionals; ii) Include sustainability-motivated professionals in strategic planning; iii) Develop and implement strategic, tactical and operational indicators in the social, economic and environmental spheres; iv) Define an internal process for the participation of the various levels of the hierarchy in the definition of strategic objectives and goals allied to organizational sustainability, and v) Promote a link between career development plan and participation of professionals in organizational sustainability.

2.2. Triple Bottom Line Model, Sustainable Development Goals (SDGs) and Tourism Management

In 1994, John Elkington introduced the concept of Triple Bottom Line (TBL) which helps companies in sustainable development considering the tripod: economic prosperity, social justice and environmental protection, in their main operations (Paz et al., 2015). TBL concept “(...)considers the need for companies to base their strategic decisions on this tripod, where they must maintain the economic sustainability of their business by managing profitable and value-creating companies, as well as social sustainability by stimulating activities linked to education, culture, leisure, well-being and social justice of the community where the company is located and all this while maintaining care for the environment through environmental care such as recycling and preservation programs, among other aspects.” (Paz et al., 2015, p. 37-38)

17 SDGs define global priorities and aspirations for 2030 (2030 Agenda for Sustainable Development, adopted by all United Nations Member States) by establishing a common language for all stakeholders, and set sustainability goals in critical areas for humanity, structured around 5 Principles (in <https://sdgs.un.org/goals>): (i) People (eradicating poverty and hunger; dignity and equality); (ii) Prosperity (ensuring prosperous and full lives in harmony with nature); (iii) Peace (promoting peaceful, just, inclusive societies) (iv) Partnerships (strong

global partnership in promoting the Agenda); (v) Planet (protecting natural resources and the climate). (<https://unfoundation.org/>).

Sustainable tourism has the potential to improve economic growth while also improving people's quality of life, supporting ecological security, cultural diversity, and peace on earth and can also contribute to all SDGs in the economic, social, and environmental domains, either directly or indirectly (UNWTO, 2015 cited by Khizara et al, 2023). So, the SDGs have become major focal points for the study of tourism's contribution to sustainable development (Rasoolimanesh et al, 2023). For instance, tourism can contribute to the attainment of the SDGs, such like, "decent work and economic growth" (SDG8), and "responsible consumption and production" (SDG 12), and "life below water" (SDG 14) (Khizara et al, 2023).

According to Business Council for Sustainable Development in Portugal (BCSD, 2022b), investors are increasingly seeking to align their portfolios with the ambitions of the SDGs, channeling investments to organizations that can demonstrate an impact considered sustainable, namely with regard to environmental, social and governance (ESG) aspects and that clearly demonstrate their positive impact on the Goals of the 2030 Agenda. Tourism (and the tourism business) is one of the largest and fastest-growing sectors globally. This sector is in a unique position to foster economic growth and development at all levels, as well as to tackle asymmetries through job creation. Thus, sustainable management in tourism business has the opportunity to promote the sustainable development of territories, associating itself with the SDGs (UNWTO, 2024b).

Tourism companies that decide for a sustainable strategic vision are exposed to new business opportunities, new markets, and a new customer base, thus obtaining benefits in terms of their recognition and brand management (Tavares, 2023).

2.3. Events classification, impacts and sustainable management

According to Getz (2007, p.18), a (planned) event *"(...) is a temporal phenomena and (...) programme or schedule is generally planned in detail and well publicized in advance"* and events are *"(..) usually confined to particular places, although the space involved might be a specific facility, a very large open space, or many locations"*.

Concerning several typologies of events forms, and selected examples in this research, we classified Festivals as an Art and Entertainment Event (within Cultural Celebrations). According to Getz (2007, p.37), “(...) *Many forms of popular culture fit into this category, including music concerts, award ceremonies, theatre, art exhibitions and dance shows. The activities that are frequently part and parcel of cultural celebrations can certainly be viewed as entertaining, but the purpose is different*”. It means that there’s a kind of hedonistic consumption and not really a cultural celebration and “(...) *It also explains why anything called ‘entertainment’ is a business*” (Getz, 2007.p.37).

All kind of events have the potential to cause both beneficial and negative effects mostly on the environment and host community and event organizations, which come from the assembly of infrastructure to the impacts caused by waste accumulated during and after events (Gonçalves et al, 2019).

Venue and host community and even event visitors have all interwoven components of event management, which means that all have to accept responsibility for their part (Oliveira, 2022). Sustainability management in events is defined as the ability to behave responsibly for the long-term preservation of wellness, all the actors must cooperate and work together to manage events in order to achieve sustainable development and reduce estimated negative impacts (Yuan, 2013).

In Portugal, we are witnessing the growth, both in number and in diversity and popularity, of the so-called “Summer Festivals”. More than seeing concerts, festivals have also become an “experience” and a holiday destination (Caetano, 2022). In fact, Music and Art festivals are events which provide unique leisure and cultural experiences, occur in sporadic moments of relaxation, separated from the daily routine and make people get involved in cultural experiences, that is, experience and deepen knowledge in art, music, sport, gastronomy, history, religion, beliefs, values, etc. (Juca, 2019). Festivals are sponsored by companies that produce consumer goods and seek to reinforce their image and positioning in order to attract more visitors, and keep them in the destination for longer, through the entertainment activities they provide (Vieira, 2020). They have a great importance for regions and destinations, since they attract more visitors and help to reduce seasonality, promoting an increase

of visitor's length of stay in the region (Paolicelli, 2017). Other benefits can be point out: (i) economy's growth and job creation (Janeczko, Mules & Ritchie, 2002); (ii) attraction of tourists; visitor expenditure (Langen & Garcia, 2009) spending in local economy; (iii) tourism development (Felsenstein & Fleischer, 2003); (iv) contribute to create the image of a place (Felsenstein & Fleischer, 2003); (v) improve the destination awareness and increase civic pride or community solidarity (Janeczko et al, 2002).

However, its impacts on the environment and the local community may not be positive due to the large concentration of thousands of participants. According to the Study "Environmental Sustainability in Music Festivals" by ESTGOH Sustentável (<https://www.estgohsustentavel.pt/#toggle-id-8>), a music festival can have several environmental impacts, from gas emissions with greenhouse effect, waste production, excessive energy consumption and water use.

Growing environmental and social awareness emerges as an opportunity for event professionals to align their practices with the principles of sustainability.

3. Methodology

The present study presents an exploratory approach (on going) based on the analysis of case studies considered as "good practices" in touristic events, with purpose of prefunding sustainable practices in this subsector on tourism industry. It was assumed as criteria for selection of cases, Art and Entertainment Music Festivals (Vieira, 2020; Getz, 2007) in Portugal having, as reference, mega events and hallmarks (Rock in Rio Lisboa; NOS Alive and MEO Kalorama) and medium events (Boom Festival and AgitÁgueda Art Festival) to better explore, in the future, regional and local events mainly in the interior of the country. Events were selected based on National Tourism Awards 2023. Adding the word "Alentejo" to the search, with the purpose of understanding this reality at in this territory, "Andanças- International Festival of Popular Dances" emerged.

Analysis was supported on TBL dimensions. Indicators for each dimension resulted from previous readings, namely the BCSD Portugal Charter of Principles (BCSD, 2021) and, subsequently, supported in analysis of festivals' websites, sustainable reports and news releases. TBL considered indicators: (i) Economic dimension (e.g.

encourage local economy; acquisition of producers and encourage local production; creativity, products and services more sustainable; mobilization of other businesspeople from sector to buy the suppliers in the region); (ii) Social Dimension (e.g. training; well-being and participants security; promoting inclusion; stakeholders involvement; recruitment of local community's members); (iii) Environmental dimension (e.g. water management; footprint carbon reduction; waste reduction; recycling and reuse; partnerships).

4. Results and Discussion

A comparative analysis was carried out based on information available on the websites considering criteria presented previously. We started by Mega and Hallmark events (Rock in Rio Lisboa; NOS Alive; MEO Kalorama), and also regional Festivals using as examples: Boom Festival; AgitÁgueda Art Festival; Festival Andanças.

Based on the TBL, it was purpose to bring together the economic, social and environmental dimensions of sustainable tourism and understand what sustainable management practices festivals' organizations adopt.

4.1. Economic dimension

The purpose was to understand how festivals relate to the local economy and the interests of the community in which it operates. The cases analyzed choose to: (i) encourage local economy and buy from local suppliers, e.g., food products - bakery, coffee, grocery (Rock in Rio, Andanças, Boom Festival, AgitÁgueda); (ii) mobilize other entrepreneurs in the sector to buy from suppliers in the region (Rock in Rio, Boom Festival, AgitÁgueda); (iii) sell products from the region (Andanças, AgitÁgueda); (iv) encourage national production, creativity and more sustainable products and services (Rock in Rio, NOS Alive, Andanças, Boom Festival); (v) employees know the company's sustainability policy, inform participants about the sustainability policy (Rock in Rio, Andanças, Boom Festival); (vi) help to develop or support the development of local businesses complementary to tourism (Rock in Rio, Andanças, Boom Festival, AgitÁgueda); (vii) constitute an incentive for the local economy (NOS Alive, Andanças, Boom Festival, AgitÁgueda).

4.2. Social Dimension

The aim was to understand how management treats its employees, and how the company operates within the local community. Results reveal: (i) employee training is promoted mainly related with sustainable behavior and inclusion (Rock in Rio, NOS Alive, MEO Kalorama, Andanças, Boom Festival, AgitÁgueda); (ii) there are well-being and safety precautions for participants with awareness campaigns related with addiction behaviors, use of condom, employees specific insurance (Rock in Rio, Andanças, Boom Festival); (iii) promotion of inclusion, e.g. recruitment of local employees; or specific accessibility for pregnant women (Rock in Rio, NOS Alive, Boom Festival); (iv) involvement of stakeholders, e.g. participants, staff and local community (Rock in Rio, Andanças); (v) recruitment and employment of local community, e.g. establishment of HR organizations partnerships and recruitment of local artists (Rock in Rio, MEO Kalorama; AgitÁgueda); (vi) part of the receipts are shared with the local community, e.g. construction of local facilities; investment in solar panels and donations for ONGs (Rock in Rio, NOS Alive, MEO Kalorama, Boom Festival); (vii) promoting of safe environments (Rock in Rio, NOS Alive, Andanças, Boom Festival); (viii) requirement of suppliers to guarantee adequate working conditions (Rock in Rio); (ix) promoting of pair equality, e.g. recruitment of women in parity with men, and investment in training for unemployed women (Rock in Rio, Boom Festival); (x) creation of local positive changes (Rock in Rio, Andanças, Boom Festival, AgitÁgueda) and in other territories (Rock in Rio, Boom Festival), for instance, with forestation activities.

4.3. Environmental dimension

The objective was to understand the relationship between companies and environment. Results show: (i) sustainable water management, e.g. local water treatment system (Rock in Rio, Andanças, Boom Festival); (ii) use of green energy (Rock in Rio, NOS Alive, MEO Kalorama, Boom Festival); (iii) use of sustainable construction materials, e.g. using waste from other editions to build outdoor terraces (NOS Alive, Boom Festival); (iv) reduction of the carbon footprint associated with travel, e.g. partnerships with collective transport (Rock in Rio, NOS Alive, Andanças, Boom Festival); (v) reduction of waste production, e.g. compost toilets (Rock in Rio,

NOS Alive, MEO Kalorama, Andanças, Boom Festival, AgitÁgueda); (vi) recycling and reuse, e.g. reuse of drinking glasses (Rock in Rio, NOS Alive, MEO Kalorama, Andanças, Boom Festival, AgitÁgueda); (vii) food waste reduction, e.g. donation of food waste and strategies of food right dose (Rock in Rio, MEO Kalorama, Andanças, Boom Festival); (viii) sustainability assessment, e.g. carbon footprint calculation (Rock in Rio, Boom Festival); (ix) regeneration of the event site, e.g. forestation practices in the exact local of the event (Andanças, Boom Festival); (x) use of energy consumption control systems (NOS Alive); (xi) signing of commitments, e.g. Lisboa Green Capital 2020 – Climate Action 2030 (Rock in Rio); (xii) establishment of several partnerships (Rock in Rio, NOS Alive, MEO Kalorama, Andanças, Boom Festival).

5. Conclusion

It is considered that these organizations adopt sustainable practices because they understand that it makes no sense to contribute to an unsustainable world, sustainable initiatives come from the organization as a whole. Festival organizations tend to consider that sustainable practices bring benefits. In addition to practices, sustainable products and services are developed.

5.1. Managerial implications for tourism event managers

In general, tourism companies must ensure an active and prominent role in their surroundings, seeking to go beyond their economic purpose. A considerable part of its competitiveness is, today, based on the ability to integrate into territorial dynamics, with a view to promoting actions, designed in parallel with populations and stakeholders, that aim at the economic growth of places and, intrinsically, create conditions that allow preserve, value and optimize existing resources.

By integrating sustainable management practices into event planning and execution, tourism event managers can contribute to the long-term viability of the tourism industry while preserving the natural, historic and cultural resources of the destination.

References

- Andanças. (2023). Conceito. <http://www.andancas.net/site/conceito/>.
BCSD (2021). Carta de Princípios do BCSD Portugal. https://bcsdportugal.org/wp-content/uploads/2017/12/Carta_Principios_BCSDPortugal.pdf.

- Biosphere. (2024, April, 2). <https://www.biospheresustainable.com/pt/page/59/sobre-nos>
- Boom Festival (2024, April 9). Eco <https://www.boomfestival.org/boom2023/environment/boom-eco-paradigm/>.
- Caetano, M. (2022, 22 July). Há cada vez mais festivais de música em Portugal: este ano serão quase 300. CNN Portugal. <https://cnnportugal.iol.pt/festivais-de-musica/festivais-de-verao/ha-cada-vez-mais-mais-festivais-de-musica-de-portugal-este-ano-serao-quase-300/20220722/62d808370cf2f9a86eae1da6>
- ESTGOH Sustentável (2024, April 3). Sustentabilidade ambiental em festivais de Música – estudo de mercado. <https://drive.google.com/file/d/191jx3JvpwmDKRuy2osXzrp2XOo5r2bAf/view>
- Felsenstein, Daniel and Fleischer, Aliza. 2003. “Local Festivals and Tourism Promotion: The Role of Public Assistance and Visitor Expenditure” Working Paper No. 20116. https://www.researchgate.net/publication/237438380_Local_Festivals_and_Tourism_Promotion_The_Role_of_Public_Assistance_and_Visitor_Expenditure
- Getz, D. (2010). The nature and scope of festival studies. *International Journal of Event Management Research*, 5(1), 1-47. <https://doi.org/10.1108/17852951011029298>
- Gonçalves, M., Barata, A., Alves, R. (2019, 28-30 May). *Eventos sustentáveis: caracterização das ações ambientais promovidas no Rock in Rio 2017*. (Conference session). 2.º Congresso Sul Americano de Resíduos Sólidos e Sustentabilidade, Instituto Brasileiro de Estudos Ambientais. Foz de Iguaçu, Brasil, <https://pdfslide.net/documents/eventos-sustentveis-caracterizafo-das-aes-4-ibeas-instituto-brasileiro.html?page=1>
- Janeczko, Ben; Mules, Trevor and Ritchie, Brent. 2015. “Estimating the Economic Impact of Festivals and Events: A Research guide”, Research Report, CRC Sustainable Report, 1-38. https://sustain.pata.org/wp-content/uploads/2015/02/Mules_EcoImpactsFestivals_v6.pdf
- Juca, J. (2019). A Responsabilidade Social Corporativa nos Festivais de Música, O Rock In Rio. [Master dissertation, Escola Superior de Comunicação Social – Instituto Politécnico de Lisboa]. <https://repositorio.ipl.pt/bitstream/10400.21/11383/1/Juliana%20Lima%20Martins%20Juca%20-%20Tese%20%28Vers%C3%A3o%20Final%29.pdf>
- Khizar, H. M. U., Younas, A., Kumar, S., Akbar, A., & Poulouva, P. (2023). The progression of sustainable development goals in tourism: A systematic literature review of past achievements and future promises. *Journal of Innovation & Knowledge*, 8(4), 100442.
- Langen, Floris and Garcia, Beatriz. 2009. “Measuring the Impacts of Large Scale Cultural Events: a Literature Review”, Impact 08 Team, 1—10. <https://iccliverpool.ac.uk/wp-content/uploads/2013/04/LAngenGarcia2008LiteREview-ARD.pdf>
- NOS Alive. (2019). O NOS Alive cada vez mais verde. <https://nosalive.com/cadavezmaisverde/>
- Ochoa, A.; Delmoro, M. (2024, April 2) Gestão sustentável e a sua relevância para as organizações. <https://www.univates.br/noticia/33760-gestao-sustentavel-e-a-sua-relevancia-para-as-organizacaoes>
- Oliveira, J. (2022). *Fighting events pollution: sustainable event management, a new model*. [Master dissertation, Kedge Business School].
- Paolicelli, M.a (2017) *The economic impact of Music festivals on the tourism economy. Nos Alice case study* [Master dissertation, Nova School of Business & Economics NSBE], <http://hdl.handle.net/10362/23380>
- Paulo, D (2022). *Modelos de Negócio Sustentáveis e o Turismo Estilo de Vida*. [Master dissertation, Bussiness & Economics School].
- Paz, J. F., Frozza, R., Kipper, L. M. (2015). Desenvolvimento de uma ferramenta par avaliação da maturidade para a sustentabilidade organizacional: Uma proposição teórico metodológica. *Tecnológica*, 19(1), 36-42.

- Rasoolimanesh, S. M., Ramakrishna, S., Hall, C. M., Esfandiar, K., & Seyfi, S. (2023). A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals. *Journal of Sustainable Tourism*, 31(7), 1497-1517
- Rock in Rio. (2022). Plano de sustentabilidade. <https://cdn.rockinrio.com/wp-content/uploads/2022/01/rock-in-rio-2022-plano-de-sustentabilidade-nov2022.pdf>.
- Rock in Rio (2024, April 4). <https://rockinriolisboa.pt/pt/por-um-mundo-melhor>.
- Tavares, R. (2023). Whitepaper Sustentabilidade. Institute of Tourism & Hospitality. Nova SBEWestmont, https://www.novasbe.unl.pt/Portals/0/Files/Reports/2023/White_paper_sustainability_Rodrigo_Tavares_WITH_mar_2023.pdf
- Teixeira, S., Ferreira, J., Almeida, A. & Parra-Lopez, R. (2019). Tourist events and satisfaction: a product of regional tourism competitiveness. *Tourism Review*. 74 (4), 943-977.
- United Nations Foundation (2024, April 2). (<https://unfoundation.org/>).
- UNWTO (2024a, April 9). Desenvolvimento sustentável. <https://www.unwto.org/sustainable-development>.
- UNWTO (2024b, April 1). Tourism for SDGs. How to engage. https://tourism4sdgs.org/wp-content/uploads/2018/07/T4SDGsRecommendations_Companies.pdf.
- Vieira, J. (2020). Eventos e Turismo – Planeamento e Organização – da Teoria à prática. (1.st edition). Edições Sílabo.
- Yuan, Y. (2013). Adding environmental sustainability to the management of event tourism. *International Journal of Culture, Tourism, and Hospitality Research*, 7(2), 175–183.

The use of ICT in creative tourism – The case of two UNESCO Creative Cities

Arturo Sousa. Universidade de Aveiro, Portugal. E-mail: arturo.sousa@ua.pt

Filipa Brandão. Universidade de Aveiro, Portugal. E-mail: filipa.brandao@ua.pt

Abstract

Purpose: The main objective of this work was to analyze the use of ICT in creative tourism as a promoter of contact established with visitors or tourists. The stakeholders of study were artisans and creative companies, and the local community of UNESCO creative cities.

Methodology: a mixed methodology was implemented, which included carrying out 30 semi-structured interviews with artisans and creative companies in Barcelos and Óbidos, as well as 408 questionnaire surveys being validated with residents of these locations that are UNESCO Creative Cities (241 in Barcelos and 167 in Óbidos). More than 470 surveys were collected but were not validated because they had at least 20% non-responses. The 30 semi-structured were conducted when upon reaching the saturation point, as being the moment at which no new information or no new themes are registered. The total number of interviewees was 14 females and 16 males. In Óbidos, the number of certified artisans is substantially smaller than in Barcelos, so it was only possible to interview 11 artisans from Óbidos. In Barcelos, a total of 19 artisans were interviewed. The choice of UNESCO Creative Cities is assumed because, according to the literature in the area, they constitute great examples in the context of creative tourism, and the areas of Literature and Crafts and Popular Arts are two of the domains that UNESCO values. and classifies as dimensions of greatest interest. These areas are also important areas from the point of view of tourism supply and demand in general. The surveys were implemented by distributing them in online format based on forms.ua and in paper format and were distributed randomly, depending on whether participants agreed to participate in the study. Survey data were analyzed using SPSS. The interviews were carried out by telephone, using the databases of the municipal councils of Barcelos and Óbidos, and their data were analyzed based on the webQDA – Qualitative Data Analysis software.

Results: The results obtained show that it is residents who can use ICT the most and best to establish contact with creative tourist demand. Artisans and creative companies can take better advantage of ICT because these platforms can help to boost artisan activity, making it more attractive, more publicized and, therefore, consumed by tourists and visitors. Artisans and creative companies are using ICT mainly to disseminate their work in a timely manner. Residents use ICT mainly to observe tourist (dis)satisfaction. The use of ICT to contact tourist demand can be used by the stakeholders studied as a means of learning, knowledge, to facilitate communication with tourists or visitors, to attract different types of tourists or visitors, for analysis, exposure and /or observation of tourist (dis)satisfaction.

Research limitations: The irregularity of the data obtained depending on the location can be considered as a limitation because it demonstrates a greater attractiveness in terms of demand for creative tourism in Óbidos than in Barcelos. The implementation of questionnaire surveys in an online format did not work as well as would have been desired because, given the various publications of links to these surveys, the number of online responses was not very significant. This fact forced several trips to Barcelos and Óbidos. Although several trips

were made during the months of May and August 2023, the fact that it was not possible to travel to Portuguese locations in other periods coinciding with creative events constitutes a limitation, as more responses could have been obtained. Carrying out interviews by telephone constitutes another limitation of this investigation because it conditioned the existing dialogue with the interviewees. Furthermore, several telephone contacts of certified artisans found on the websites of the municipal councils of Barcelos and Óbidos were inactive or out of service, and not all unanswered telephone calls were returned.

Originality: The use of ICT by tourism in general and in the particular case of creative tourism is a topic that has little been analyzed from a microregional perspective. In the case of UNESCO Creative Cities, the role of ICT in establishing contacts between the tourist offer and tourists and creative visitors has not been analyzed in the literature in the area. The development of a mixed methodology also assumes an original character as two important and essential stakeholders of creative tourism are considered.

Keywords: *ICT; Creative tourism; UNESCO Creative Cities; Craftsmen; Creative companies; Local community.*

Acknowledgements: This research was supported by the PhD Scholarship SFRH/BD/151158/2021 financed by the Foundation for Science and Technology (FCT), and with funds from the State Budget (OE), within the scope of the MIT Portugal Program.

References

- Adeleye, B. N. (2023). Re-examining the tourism-led growth nexus and the role of information and communication technology in East Asia and the Pacific. *Heliyon*, Vol. 9, N. 1, p. 12. <https://doi.org/10.1016/j.heliyon.2023.e13505>
- Aquino, J. F. & Burns, G. L. (2021). Creative tourism: The path to a resilient rural Icelandic community. In Scherf, K. (edt). *Creative tourism in smaller communities – Place, culture, and local representation* (pp. 165-185). Thompson Rivers University, Canadá.
- Arcos-Pumarola, J., Paquin, A. G. & Sitges, M. H. (2023). The use of intangible heritage and creative industries as a tourism asset in the UNESCO creative cities network. *Heliyon*, Vol. 9, N. 1, p. 11. <https://doi.org/10.1016/j.heliyon.2023.e13106>
- Bowonder, B., Sayeed, S. & Jain, A. (2005). Evolving an ICT platform for a traditional industry: Transforming artisans into entrepreneurs. *International Journal of Services Technology and Management*, Vol. 6, N. 5, pp. 379-401. <https://doi.org/10.1504/IJSTM.2005.007416>
- Buhalis, D. & O'Connor, P. (2005). Information communication technology revolutionizing tourism. *Tourism Recreation Research*, Vol. 30, N. 3, pp. 7-16.
- Cai, W. & McKenna, B. (2023). Power and resistance: Digital-free tourism in a connected world. *Journal of Travel Research*, Vol. 62, N. 2, pp. 290–304. <https://doi.org/10.1177/00472875211061208>
- Chen, V. & Mak, B. (2021). The hybrid discourse on creative tourism: Illuminating the value creation process. *International Journal of Culture, Tourism and Hospitality Research*, Vol. 15, N. 4, pp. 547-564. <https://doi.org/10.1108/IJCTHR-07-2020-0138>

- Choi, A., Berridge, G. & Kim, C. (2020). The urban museum as a creative tourism attraction: London Museum lates visitor motivation. *Sustainability*, Vol. 12, N. 1, p. 18. <https://doi.org/10.3390/su12229382>
- Dias, A., González-Rodríguez, M. R. & Patuleia, M. (2021). Creative tourism destination competitiveness: An integrative model and agenda for future research. *Creative Industries Journal*, p. 25. <https://doi.org/10.1080/17510694.2021.1980672>
- Fandi, A. S. (2015). The role of the local community in sustainable tourism development – Case Study (Governorate-Ajloun/Jordan). *Research on Humanities and Social Sciences*, Vol.5, N. 8, pp. 42-49.
- Françoise, P. (2021). Inclusive creativity: A new urban concept for creative cities?. Urban creativity - Inclusive creativity, the case of Lyon (25 de maio de 2021), Zhejiang, China.
- Ferreira, A., Liberato, P., Liberato, D. & Rocha, Á (2019). Information and communication technologies in creative and sustainable tourism. In Rocha, Á., Adeli, H., Reis, L. & Costanzo, S. (eds): *WorldCIST'19, AISC 930, New knowledge in information systems and technologies* (pp. 91–100). Springer, Suíça. https://doi.org/10.1007/978-3-030-16181-1_9
- Freitag, R. M. (2018). Amostras sociolinguísticas: Probabilísticas ou por conveniência? *Revista de Estudos da Linguagem*, Vol. 26, N. 2, pp. 667-686. <https://doi.org/10.17851/2237-2083.26.2.667-686>
- Gato, M., Costa, P., Cruz, A. R. & Perestrelo, M. (2020). Creative tourism as boosting tool for placemaking strategies in peripheral areas: Insights from Portugal. *Journal of Hospitality & Tourism Research*, Vol. XX, N. X, Month 201X, p. 19. <https://doi.org/10.1177/1096348020934045>
- Jia, Z., Gao, M., Xu, S., Lyu, Y., Feng, J., Zhou, Z., Yu, T. & Wu, W. (2021) Sociocultural vitality versus regulation policy and tourism development in preservation of traditional rural landscape: A case from Guizhou, China. *International Journal of Sustainable Development & World Ecology*, Vol. 28, N. 2, pp. 179-192. <https://doi.org/10.1080/13504509.2020.1788661>
- Jóhannesson, G. T. & Lund, K. A. (2017). Creative connections? Tourists, entrepreneurs and destination Dynamics. *Scandinavian Journal of Hospitality and Tourism*, Vol. 1, p. 17. <http://dx.doi.org/10.1080/15022250.2017.1340549>
- Kansakar, P., Munir, A. & Shabani, N. (2019). Technology in hospitality industry: Prospects and challenges. *IEEE Consumer Electronics Magazine*, Vol. 8, N. 3, pp. 60-65. <https://doi.org/10.1109/MCE.2019.2892245>
- Kastenholz, E. Paço, A. & Nave, A. (2023). Wine tourism in rural areas – Hopes and fears amongst local residentes. *Worldwide Hospitality and Tourism Themes*, Vol. 15, N. 1, pp. 29-40. <https://doi.org/10.1108/WHATT-08-2022-0095>
- Mandic, A. & Pranicevic, D. G. (2019). Progress on the role of ICTs in establishing destination appeal Implications for smart tourism destination development. *Journal of Hospitality and Tourism Technology*, Vol. 10, N. 4, pp. 791-813. <https://doi.org/10.1108/JHTT-06-2018-0047>
- Martínez-Carazo, E. M., Santamarina-Campos, V. & Miguel-Molina, M. (2021). Creative mural landscapes, building communities and resilience in Uruguayan tourism. *Sustainability*, Vol. 13, N. 1, p. 17. <https://doi.org/10.3390/su13115953>
- Marujo, M., Borges, M. R., Serra, J. & Coelho, R. (2021). Strategies for creative tourism activities in pandemic contexts: The case of the ‘Saídas de Mestre’ Project. *Sustainability*, Vol. 13, N. 1, p. 17. <https://doi.org/10.3390/su131910654>
- McCarthy, J. & Wang, Y. (2016). Culture, creativity and commerce: Trajectories and tensions in the case of Beijing's 798 Art Zone. *International Planning Studies*, Vol. 21, N. 1, p. 15. <https://doi.org/10.1080/13563475.2015.1114446>
- Mehta, S. & Kalra, M. (2006). Information and Communication Technologies. *The International Information & Library Review*, Vol. 38, N. 3, pp. 147-160, <https://doi.org/10.1080/10572317.2006.10762716>

- Nieuwland, S. & Lavanga, M. (2021). The consequences of being 'the Capital of Cool'. Creative entrepreneurs and the sustainable development of creative tourism in the urban context of Rotterdam. *Journal of Sustainable Tourism*, Vol. 29, N. 6, pp. 926-943. <https://doi.org/10.1080/09669582.2020.1841780>
- Nigg, J. J. & Peters, M. (2022). The evolution of ICTs in accessible tourism: A stakeholder collaboration analysis. *Journal of Hospitality and Tourism Management*, Vol. 52, N. 1, pp. 287-294. <https://doi.org/10.1016/j.jhtm.2022.07.007>
- Olya, H. G., Alipour, H. & Gavilyan, Y. (2018) Different voices from community groups to support sustainable tourism development at Iranian World Heritage Sites: Evidence from Bisotun. *Journal of Sustainable Tourism*, Vol. 26, N. 10, pp. 1728-1748. <https://doi.org/10.1080/09669582.2018.1511718>
- Palencíková, Z. & Csapó, J. (2021). Creative tourism as a new tourism product in Slovakia – The theoretical and practical analysis of creative tourism: formation, importance, trends. *Edition Europica varietas*, N. 146, Nitra, Eslováquia.

The Business Continuity Assumption and Its Assessment – An Overview

Cândido J. Carvalho Peres M. Instituto Superior de Contabilidade e Administração de Lisboa, Instituto Politécnico de Lisboa, Portugal. cjperes@iscal.ipl.pt

Catarina. Carvalho Peres T. Instituto Superior de Contabilidade e Administração de Lisboa, Instituto Politécnico de Lisboa, Portugal. ccterrinca@iscal.ipl.pt

Mário Antão. COMEGI e Universidade Lusíada, Portugal. maga@lis.ulusiada.pt

Abstract

Purpose: Present a literary review on business sustainability, as well as the main practices used both in its assessment and in judgment formulation and opinion issuing about the business continuity ability.

By studying the business performance and its evaluation process, the aim is to observe the contribution of the financial analysis, both in its traditional and more developed aspects, to the construction of an opinion on the business continuity.

To detect the influence and possible usage of practices or indicators of business health prediction in determining the opinion on the companies' continuity ability.

Identify potential common grounds between the business bankruptcy prediction and the continuity assessment. Evaluate to what extent the growing concern and investment in the research of the anticipation and causes of business bankruptcy and its ability to recovery may contribute to the usage of the instruments that it has been being developed, as well as their dissemination both in the academic and professional environment. (Macedo 2017, Peres 2022)

Finally, reflect and observe the main drivers in business continuity's judgment construction and opinion issuance, evaluating its evolution, attempting to contribute to its improvement.

Methodology: The theoretical framework was constructed through the review of the available reference bibliography regarding the topics under discussion, followed by the necessary explanation of the most important concepts, with an approach aimed at identifying potential connections between them.

Results: We sought to establish the basis for identifying evidence, albeit in a preliminary aspect of literary review, regarding the use of more advanced and resilient methodologies of financial analysis, better techniques and their particularities in order to enable the study of these effects on formulation of judgment and issuance of opinion on business continuity.

In addition to reflecting on financial analysis, performance and business continuity, as main conclusion we observed that in the formulation and substantiation of the opinion or judgment on continuity, a global and widespread practice of using objective metrics, supported by resilient financial analysis indicators, such as bankruptcy prediction models is not identified. (Ryu et al 2007, Carvalho 2013, Geiger et al 2019)

This demonstrates that there is still a long way to go, regarding the usage of more than simply elementary indicators, of univariate analysis, or lesser that that, only the analyst's experience, so that these models and techniques are an effective instrument to support the construction opinion and determination of business continuity (Breia et al 2014, Peres and Antão 2017, Peres and Carvalho 2024).

Originality: The search for identifying and anticipating situations of financial difficulties or breakdown of business continuity is a current topic as well as being particularly important in crisis situations and given the growing number of company closures.

Complement studies already developed, focusing on the Iberian economy, allowing for in-depth research into bankruptcy and business sustainability, enabling the triggering of improvements in the application of the techniques described.

Emphasize the dissemination and dissemination of these, highlighting their importance in the life of companies and implementing their instrumental use by management.

Keywords: *Sustainability, Continuity, Bankruptcy Forecast, financial analysis*

References

- Breia, A., Mata, N. and Pereira, V. (2014). *Análise Económica e Financeira: Aspectos Teóricos e Casos Práticos*, Rei dos Livros
- Carvalho, P. (2013). Continuidade: Estudo de um Caso. Revisores e Auditores, *Revista da Ordem dos Revisores Oficiais de Contas*, 63.
- Geiger, M. A., Gold, A. and Wallage P. (2019). *A Synthesis of Research on Auditor Reporting on Going- Concern Uncertainty: An Update and Extension*. Foundation for Auditing Research.
- Macedo, V. (2017). *A Continuidade e as Técnicas de Previsão de Falência – O Caso Das Sociedades Portuguesas*. Lisboa: Instituto Superior de Contabilidade e Administração de Lisboa, Dissertação de Mestrado.
- Peres M., C. J. (2022). *Previsão de falência: melhoria da eficiência na utilização da informação económica e financeira*, Tese de Doutoramento, Faculdade de Ciências da Economia e da Empresa, Universidade Lusíada de Lisboa, Lisboa.
- Peres, C. and Antão, M. (2017). The use of multivariate discriminant analysis to predict corporate bankruptcy: A review, *Aestimatio, The IEB International Journal of Finance*, 14, pp. 108-131.
- Peres M., C. J. and Carvalho T., C. (2024). *Portuguese Companies' Bankruptcy Forecast – The Multi-sectoral Sensitivity of the Multivariate Discriminant Analysis' Models*, 3rd International Workshop Accounting and Taxation, Porto.
- Ryu, T. G. and Roh, C. (2007). The Auditor's Going-Concern Opinion Decision. *International Journal of Business and Economics*, 6(2), pp. 89-101.

Session – “Marketing and Brand Management Insights”

Chair: Jorge Lopes

Communication and brands with longevity: preliminary insights in cross-border regions context

Carla Igreja. *Universidad de Vigo, Spain. carla.martins.igreja@gmail.com*

José Chamorro Rivas. *Universidad de Vigo, Spain. chamorro@uvigo.gal*

Bruno Sousa. *Polytechnic Institute of Cávado and Ave (IPCA), UNIAG and CiTUR, Portugal. bsousa@ipca.pt*

Abstract

Purpose: To understand how integrated marketing communication based on brand value influences the image and relationships in companies with longevity in specific cross-border contexts.

Methodology: Semi-structured interviews (of an exploratory nature) with eight companies in a cross-border region context and questionnaire surveys with consumers of brands with longevity (brands over 80 years old).

Results: The contribution of this study will result from the perspective of the agents involved (consumers and cross-border companies), cooperating for scientific advancement and demonstrating that integrated marketing communication of brand value and relationships with consumers are fundamental to differentiating companies in the 21st century.

Research limitations: The study is being developed in a cross-border context (in particular, the case of Euroregions). As this is a study in progress, it is not yet possible to generalize the (preliminary) results obtained.

Originality: The use of history and its authenticity is considered a strategic resource for organizations and can be used to gain credibility, power and influence, which are important for the successful legitimization of the strategy. Understand how they are adapting to consumers, carrying out brand communication in order to relate and promote perceived quality, trust and consumer loyalty.

Keywords: *Communication, Brands, Cross-border Regions, Longevity*

References

- Blomback, A., & Ramírez-Pasillas, M. (2012). Exploring the logics of corporate brand identity formation. *Corporate Communications: An International Journal*, 17(1), 7–28.
- Cardoso, D., Sousa, B., Liberato, D., Liberato, P., Lopes, E., Gonçalves, F., & Figueira, V. (2023). Digital communication and the crisis management in Hotel Management: A perspective in the Euroregion North of Portugal and Galicia (ERNPG). *Administrative Sciences*, 13(8), 191.
- Hollebeek, L. D., Glynn, M. S. & Brodie, R. J. (2014). Consumer Brand Engagement in Social Media: Conceptualization, Scale Development and Validation. *Journal of Interactive Marketing*, 28, 149-165.
- Pecot, F., Celhay, F. Kacha, M. & Lombard, G. (2022). Expressions of the past: A practice-based approach of brand longevity visual translation in advertising. *Journal of Business Research*, 150,121-133.
- Rhiu, I., Kwon, S., Yun, M. H., & Park, D. C. (2016). Analysis of Relationship Between Brand Personality and Customer Satisfaction on a Vehicle Exhaust Sound. *International Journal of Industrial Engineering*, 23(1), 68-82.

How Cool are Portuguese Telecommunications Brands? A Factorial Analysis

Belém Barbosa. School of Economics and Management, University of Porto, Portugal.
marketing.belem@gmail.com

Bruna Carneiro. School of Economics and Management, University of Porto, Portugal.
marketing.belem@gmail.com

Abstract

Purpose: Brand coolness is attracting growing attention from researchers and practitioners. While coolness sets brands apart from competitors (Warren et al., 2019), Napalai and Khamwon (2023) emphasize brand coolness as a pivotal social factor influencing the adoption of leading products or services. Numerous studies support the notion that consumers opt for products or services perceived as cool, highlighting the significant marketing ramifications of coolness, which yield beneficial outcomes across diverse contexts (Kim & Park, 2019; Khoi & Le, 2022).

The notion of brand coolness is multifaceted, described as "a subjective and dynamic, socially constructed positive trait attributed to cultural objects inferred to be appropriately autonomous" (Warren & Campbell, 2014, p.544). This definition underscores four key aspects of coolness. Firstly, it is subjective and dynamic (Warren & Campbell, 2014). Secondly, coolness is viewed as a positive trait (Warren & Campbell, 2014). Thirdly, it is a socially constructed concept (Warren & Campbell, 2014). Lastly, despite its positive connotation, coolness entails more than mere perception of positivity or desirability (Belk et al., 2010; Warren & Campbell, 2014).

Warren et al. (2019) initiated pioneering research into brand coolness, marking a significant milestone in the literature by providing a clear conceptual framework, introducing an assessment scale, and paving the way for subsequent inquiries. This contribution has spurred a surge of recent investigations into brand coolness, with a focus on refining and broadening the initial study's insights (Loureiro et al., 2020; Bagozzi & Khoshnevis, 2022; Attiq et al., 2022; Jiménez-Barreto et al., 2022; Khoi & Le, 2022; Amenuvor et al., 2023; Napalai & Khamwon, 2023). Recognizing the persistent gaps in the literature, particularly the absence of comprehensive insights into what constitutes brand coolness, as highlighted by Warren et al. (2019), underscores the continued relevance of this area for further exploration. Consequently, numerous studies have echoed the necessity for addressing these gaps (Khoi & Le, 2022; Jiménez-Barreto et al., 2022; Napalai & Khamwon, 2023; Amenuvor et al., 2023), advocating for the need to explore brand coolness in different industries.

The concept of coolness can either elevate brands, propelling them to the upper echelons of popularity or detract from them, relegating them to less desirable status (Loureiro & Blanco, 2021). Warren et al. (2019) introduced an assessment framework to distinguish between brands perceived as cool and those considered less so. According to Warren et al. (2019, p. 38), brand coolness encompasses ten dimensions that collectively shape the perception of a brand as cool, such as "useful/extraordinary, aesthetically appealing, energetic, high status, original, authentic, rebellious, subcultural, iconic, and popular." As highlighted by Khoi and Le (2022), these dimensions of brand coolness may vary depending on the context (e.g., goods and services) or customer segmentation (e.g., standard and luxury), with certain dimensions

carrying more weight than others contingent upon the brand's specific environment (Loureiro & Blanco, 2021).

Existing research has examined brand coolness within the realm of services, with specific focus on its association with museums (Loureiro & Blanco, 2021) and hotel services (Khoi & Le, 2022), as highlighted by Jiménez-Barreto et al. (2022). Nonetheless, gaps persist in the literature concerning exploring brand coolness across various service sectors, underscoring the necessity for further investigation (Jiménez-Barreto et al., 2022; Amenuvor et al., 2023). One of the industries that has not been covered in brand coolness literature is the telecommunications sector. Given the sector's significance in individuals' lives and the broader economy, a notable gap exists in understanding how perceived brand coolness influences consumer behavior within this domain. Furthermore, the fierce competition among brands within the telecommunications sector, coupled with substantial marketing, branding, and communication efforts, renders it a compelling subject for exploration through the lens of coolness.

Hence, the main aims of this study are (i) to adapt the brand coolness measure developed and validated by Warren et al. (2019) to the telecommunications sector, (ii) to identify the dimensions of Brand Coolness that are significant for telecommunication brands, and (iii) to compare brand coolness of the main Portuguese telecommunications brands.

Methodology: This article includes a study in Portugal based on a structured questionnaire on brand coolness. Participants are Portuguese consumers (N>200) aged 18 or older who are customers of a Portuguese telecommunications brand. Considering all its dimensions and items, brand coolness was measured with the scale developed and validated by Warren et al. (2019). Data was collected between March and April 2024. All items of the constructs were measured using a 7-point Likert scale, from "strongly disagree" (1) to "strongly agree" (7). During all phases of the study, the ethical principles usually recommended for social science research were applied, including informed consent, confidentiality, and voluntary and anonymous participation. Statistical analysis of the collected data included multivariate analysis, namely exploratory and confirmatory factor analyses.

Results: This study's results highlight which brand coolness dimensions are most significant in the telecommunications sector. Additionally, the results allow comparison with previous studies carried out in other sectors. Finally, the results enable to compare brand coolness of the main telecommunications brands in Portugal.

Originality: This article focuses on the dimensions of brand coolness, an area of research that still needs to be explored in the literature. It focuses on the telecommunications sector, which, due to the high level of competition in recent years, deserves more attention from researchers. It is also a sector yet to be studied regarding brand coolness.

Keywords: *Coolness, brand coolness, telecommunications sector, consumer behavior, Portugal.*

References

- Amenuvor, F. E., Akasreku, F., & Mensah, K. (2023). Examining the effect of brand coolness on communal brand connection and brand commitment: A mediation and moderation perspective. *Marketing Intelligence & Planning*, 0264(4503). <https://doi.org/10.1108/mip-03-2023-0082>

- Attiq, S., Abdul Hamid, A. B., Khokhar, M. N., Shah, H. J., & Shahzad, A. (2022). "Wow! It's cool": How brand coolness affects the customer's psychological well-being through brand love and brand Engagement. *Frontiers in Psychology*, 13(923870), 1–19. <https://doi.org/10.3389/fpsyg.2022.923870>
- Bagozzi, R. P., & Khoshnevis, M. (2022). How and when brand coolness transforms product quality judgments into positive word of mouth and intentions to buy/use. *Journal of Marketing Theory and Practice*, 1–20. <https://doi.org/10.1080/10696679.2022.2081925>
- Belk, R. W., Tian, K., & Paavola, H. (2010). Consuming cool: Behind the unemotional mask. *Research in Consumer Behavior*, 12, 183–208. [https://doi.org/10.1108/s0885-2111\(2010\)0000012010](https://doi.org/10.1108/s0885-2111(2010)0000012010)
- Jiménez-Barreto, J., Correia Loureiro, S. M., Rubio, N., & Romero, J. (2022). Service brand coolness in the construction of brand loyalty: A self-presentation theory approach. *Journal of Retailing and Consumer Services*, 65(102876), 1–15. <https://doi.org/10.1016/j.jretconser.2021.102876>
- Khoi, N. H., & Le, A. N.-H. (2022). Is coolness important to luxury hotel brand management? The linking and moderating mechanisms between coolness and customer brand engagement. *International Journal of Contemporary Hospitality Management*, 34(7), 2425–2449. <https://doi.org/10.1108/ijchm-10-2021-1230>
- Kim, J., & Park, E. (2019). Beyond coolness: Predicting the technology adoption of interactive wearable devices. *Journal of Retailing and Consumer Services*, 49, 114–119. <https://doi.org/10.1016/j.jretconser.2019.03.013>
- Loureiro, S. M. C., & Blanco, T. M. (2021). Museum coolness: Creating the desire to revisit. *Tourism Recreation Research*, 48(1), 1–16. <https://doi.org/10.1080/02508281.2021.1885799>
- Loureiro, S. M. C., Jiménez-Barreto, J., & Romero, J. (2020). Enhancing brand coolness through perceived luxury values: Insight from luxury fashion brands. *Journal of Retailing and Consumer Services*, 57, 102211. <https://doi.org/10.1016/j.jretconser.2020.102211>
- Napalai, J., & Khamwon, A. (2023). The antecedents and consequence of brand coolness: A case of millennial consumers toward fashion clothing brands. *Uncertain Supply Chain Management*, 11(2), 513–522. <https://doi.org/10.5267/j.uscm.2023.2.013>
- Warren, C., Batra, R., Loureiro, S. M. C., & Bagozzi, R. P. (2019). Brand coolness. *Journal of Marketing*, 83(5), 36–56. <https://doi.org/10.1177/0022242919857698>
- Warren, C., & Campbell, M. C. (2014). What makes things cool? How autonomy influences perceived coolness. *Journal of Consumer Research*, 41(2), 543–563. <https://doi.org/10.1086/676680>

Influencer Marketing on Social Media: The Impact of the Success of Brands

Inês Costa. Instituto Superior de Administração e Gestão - EBS; Portugal.
ines9costa11@gmail.com

Jorge Lopes. Instituto Superior de Administração e Gestão - EBS; CICET – FCVC, Portugal.
jorge.lopes@isag.pt

Abstract

Purpose: Digital marketing has grown significantly in recent years, becoming one of the main tools used by brands that have seen the growth of the internet as an opportunity to expand their business. The future of digital marketing is being shaped through several new trends and technologies that have emerged in recent years (Rana & Kaithwas, 2023). Thus, it is not surprising that the Internet and the rapid advances in digital networks have conquered Marketing. Digital and social media marketing involves the use of digital marketing tools such as websites, social networks, apps, emails, blogs, among others, to create engagement with consumers anywhere and anytime (Kotler & Armstrong, 2018). Social media platforms have changed the way people engage, communicate, influence, and connect. According to Haenlein et al. (2020), Facebook, YouTube, Instagram, and Tik Tok are the most prominent platforms today. However, there are numerous distinct characteristics of these social networks and their users, namely, the age group, for example, Facebook focuses more on an age group over 40 years old, Instagram focuses on the 30s and Tik Tok in the 20s. According to Hanlon & Tuten (2022), social networks are like a means of communication and collaboration between interconnected groups of individuals, communities, and organizations, being favored by technological capacity and mobility. Nowadays, people are constantly connected to their smartphones, it often becomes a necessity. In this way, it is no wonder that social networks have become an extremely important tool in marketing. The increase of digital influencers on these platforms has become the strategic point for brands. Brands that collaborate with digital influencers to create a kind of bridge between the public and the brand itself. All this through social networks where influencers show confidence in the brand's products so that their audience buys that same product. Authenticity is an important attribute for followers to admire, like, and follow influencers (Audrezet et al., 2020), as well as attractiveness and intimacy (Lou & Yuan, 2019), and content that is enjoyable, entertaining, communicative, and informative (Ki et al., 2020; Ki & Kim, 2019; Stubb & Colliander, 2019). Consumers value it when brands brand their posts with some personal aesthetic touches and according to their personality, which provides them with a better experience (Lou & Yuan, 2019). In some situations, when the influencer shows an inspiring personality, has a follower base, and produces quality content (Eng & Jarvis, 2020), he is seen as a human brand that uses social media to present his photos, ideas, his experience and, of course, the sponsored products that satisfy the needs of consumers (Singh & Sagar, 2021).

Methodology: A qualitative research approach was adopted, involving 11 brands from Portugal. For this study, semi-structured interviews were chosen since they have a flexible structure and positioning so that emerging issues can be deeply explored (Denny & Weckesser, 2022). Of the eleven participants, two are marketing agencies, five are considered participants with a strong social media positioning and the remaining four are considered participants with a social media positioning that is still very early.

Results: The research was oriented to answer the central question of this Dissertation: "Do digital influencers have an important role in the success of brands?", giving rise to six research questions: 1) Most used social networks: this question was confirmed, with Instagram, Facebook, Tik Tok and LinkedIn standing out as the most used platforms; 2) Strategic importance of social networks: in this case, it is stated that brands unanimously highlight the promotion of products, building proximity with customers and communities and digital presence as a strategy; 3) Criteria used in the choice of social networks: this question highlighted common objectives, such as proximity to customers and increased visibility, with Instagram and Facebook platforms being widely preferred by brands; 4) Advantages of social networks: in this particular context, there was a notable convergence in valuing engagement and building a community. Visibility and brand recognition are also evidenced factors. 5) Metrics to build close relationships: in this issue, it has been proven that genuine engagement, authenticity, and concern for interactions such as comments, direct messages and shares are unanimously recognized as essential pillars. The humanization of the brand, through the presentation of faces, storytelling, and collaborations with influencers, stands out as a strategy that is also common among brands; 6) Influencer marketing: this last question revealed a positive trend on the feasibility of using influencer marketing by brands. The ability to reach new audiences and strengthen ties with consumers is highlighted, and the careful choice of influencers is essential so that there is cohesion with the brand's identity and values.

Originality: This study focuses on the importance of understanding if digital influencers have an important role in the success of brands and, in a positive way, it is affirmed that it is.

Keywords: *Marketing, Influencer Marketing, Influencers, Social Media*

References

- Audrezet, A., de Kerviler, G., & Guidry Moulard, J. (2020). Authenticity under threat: When social media influencers need to go beyond self-presentation. *Journal of Business Research*, 117, 557–569. <https://doi.org/10.1016/j.jbusres.2018.07.008>
- Denny, E., & Weckesser, A. (2022). How to do qualitative research? *BJOG: An International Journal of Obstetrics & Gynaecology*, 129(7), 1166–1167. <https://doi.org/10.1111/1471-0528.17150>
- Eng, B., & Jarvis, C. B. (2020). Consumers and their celebrity brands: how personal narratives set the stage for attachment. *Journal of Product & Brand Management*, 29(6), 831–847. <https://doi.org/10.1108/JPBM-02-2019-2275>
- Haenlein, M., Anadol, E., Farnsworth, T., Hugo, H., Hunichen, J., & Welte, D. (2020). Navigating the New Era of Influencer Marketing: How to be Successful on Instagram, TikTok, & Co. *California Management Review*, 63(1), 5–25. <https://doi.org/10.1177/0008125620958166>
- Hanlon, A., & Tuten, T. L. (2022). *The SAGE Handbook of Social Media Marketing*. Sage Publications Ltd.
- Ki, C., Cuevas, L., Chong, M., & Lim, H. (2020). Influencer marketing: Social media influencers as human brands attaching to followers and yielding positive marketing results by fulfilling needs. *Journal of Retailing and Consumer Services*, 55, 102133. <https://doi.org/10.1016/j.jretconser.2020.102133>
- Ki, C., & Kim, Y. (2019). The mechanism by which social media influencers persuade consumers: The role of consumers' desire to mimic. *Psychology & Marketing*, 36(10), 905–922. <https://doi.org/10.1002/mar.21244>
- Kotler, P., & Armstrong, G. (2018). *Principles of Marketing* 17th ed., Pearson.

- Lou, C., & Yuan, S. (2019). Influencer Marketing: How Message Value and Credibility Affect Consumer Trust of Branded Content on Social Media. *Journal of Interactive Advertising*, 19(1), 58–73. <https://doi.org/10.1080/15252019.2018.1533501>
- Rana, A., & Kaithwas, A. (2023). The Shifting Landscape Of Digital Marketing: Trends and Predictions for the Future. *Phalanx: A Quarterly Review for Continuing Debate*, 18(2). <https://www.researchgate.net/publication/372787998>
- Singh, S., & Sagar, R. (2021). A critical look at online survey or questionnaire-based research studies during COVID-19. *Asian Journal of Psychiatry*, 65. <https://doi.org/10.1016/j.ajp.2021.102850>
- Stubb, C., & Colliander, J. (2019). “This is not sponsored content” – The effects of impartiality disclosure and e-commerce landing pages on consumer responses to social media influencer posts. *Computers in Human Behavior*, 98, 210–222. <https://doi.org/10.1016/j.chb.2019.04.024>

Internal marketing and relationship management in the organizational context: a preliminary study

Miguel Neves. Polytechnic Institute of Cávado and Ave (IPCA), Portugal.
miguel.silva.neves98@gmail.com

Bruno Sousa. Polytechnic Institute of Cávado and Ave (IPCA), UNIAG and CiTUR, Portugal.
bsousa@ipca.pt

Joana Gonçalves. Polytechnic Institute of Cávado and Ave (IPCA), Portugal.
jofilipagoncalves99@gmail.com

Cláudia Veloso. University of Aveiro (ESTGA), GOVCOPP, Universidade Aberta, Portugal.
cmv@ua.pt

Abstract

Purpose: The aim of this preliminary research is to study a number of aspects that affect employee relations and how internal marketing can influence organizational success and, in turn, help an organization to flourish in the current competitive environment that the job market is experiencing.

Methodology: The methodology adopted is entirely qualitative, based on document analysis, semi-structured interviews and a focus group with questions about internal marketing. The vision of those responsible for human resources management and employees on this subject was analyzed, as well as the main internal marketing actions implemented in the companies.

Results: The results seem to show that internal marketing plays an essential role in the management of human capital. All the participants in the study considered factors related to organizational success, job satisfaction and extrinsic factors related to monetary rewards to be important.

Research limitations: The study is predominantly qualitative, based on semi-structured interviews and focus groups. Although this is a preliminary study, future studies should enable quantitative research to be carried out.

Originality: Internal marketing is a key issue for the organizational development of any company, ultimately helping to optimize the human resources of organizations. Job satisfaction and motivation play a significant role in the functioning of a contemporary organization, as it helps to increase employees' skills and abilities, helping them to perform their jobs better.

Keywords: *Human Capital, Internal Marketing, Motivation, Job Satisfaction, Organizations*

References

- Collins, B. e Payne, A. (1991). Internal Marketing: A new perspective for HRM. *European Management Journal*, Vol.9, N. º 3, pp. 261-270
- Fernandes, P.M., Sousa, B.B., Veloso, C.M. e Valeri, M. (2023), The role of endomarketing in human capital management: a study applied to the Minho Urban Quadrilateral, *EuroMed Journal of Business* <https://doi.org/10.1108/EMJB-12-2022-0212>.

The Effects of Perceived Personalization in Omnichannel Retail

Fábio Matos Ribeiro. CARME, Escola Superior de Tecnologia e Gestão do Politécnico de Leiria, Portugal. fabio.m.ribeiro@ipleiria.pt

Alzira Marques. CARME, Escola Superior de Tecnologia e Gestão do Politécnico de Leiria, Portugal. alzira.marques@ipleiria.pt

Célia Santos. Instituto Superior Miguel Torga, Coimbra, Portugal; Escola Superior de Tecnologia e Gestão do Politécnico de Leiria, Portugal. celiasantos@ismt.pt

Abstract

Purpose: Consumers have always sought convenience and relevant channel options, such as physical stores, online shops, applications, and social networks, among others (Hossain et al., 2020; Wind et al., 2003). In this way, omnichannel emerges as a retail strategy to provide a seamless experience, where all channels are combined or integrated to enhance consumer experience and company performance (Lazaris & Vrechopoulos, 2014; Lee, 2020). This poses a challenge for organizations to meet current market demands and remain competitive (Lee et al., 2019).

Advanced technologies to predict and better respond to buyers' preferences drive the crucial role that personalization can play in the omnichannel context, as channel integration has significant potential to provide more personalized information and enhance consumer experience (Hänninen et al., 2018; Shi et al., 2020; Thaichon et al., 2024). Therefore, it is relevant to understand the impact that channel integration quality can have on the perception of personalization among omnichannel brand/retailer customers.

Personalization is the organization's competence to collect, analyze, and utilize personal data to proactively recommend and alter offerings, aiming to enhance personal relevance (Piccoli et al., 2017) by providing consumers with individualized attention and tailored service (Shi et al., 2020). Thus, the perception of personalization can create and maintain a more customer-oriented omnichannel system (Alang & Nguyen, 2022), making it relevant to understand the influence it has on consumer experience. However, for personalization to generate value, buyers need to perceive it as personally beneficial to themselves (Alimamy & Gnoth, 2022).

According to the Marketing Science Institute (2020), it is relevant to investigate strategies that prioritize customer value at all touchpoints during the omnichannel journey. Similarly, it is necessary to further explore the role of personalization in the omnichannel context (Tyrväinen et al., 2020), since although several studies have sought to explain the effects of personalization, the literature presents inconclusive results. Studies have concluded that personalization has a positive influence on perceived value (Sharma & Fatima, 2024), but can cause risks that have a negative impact on shopping intention (Shi et al., 2020). Findings indicate that personalization has a positive impact on the emotional and cognitive components of the customer experience (Rahmawati & Arifin, 2022; Tyrväinen et al., 2020). However, Zhang et al. (2024) concluded that personalization doesn't have a positive effect on the utilitarian customer experience.

To contribute to the development of knowledge on the omnichannel theme and from the perspective of the customer who purchases from the same retailer through online and offline channels, this study aims to explore the influence of channel integration quality on perceived personalization. Also, the impact of perceived personalization on perceived value and on the affective and cognitive dimensions of the consumer experience. Additionally, this study explores the mediating role of perceived personalization, on one hand, between channel integration quality and consumer experience, and on the other hand, between channel integration quality and perceived value.

Methodology: The conceptual framework and research hypotheses were developed based on the analysis of the literature on the topic. Through an online questionnaire, 390 valid responses from Portuguese buyers of omnichannel brands/retailers were collected, and a structural equation model was estimated using AMOS 29 software.

Results: The results show that channel integration quality has a positive effect on perceived personalization, while this perception has a positive influence on consumer experience, more significantly on the affective component. Contrary to expectations, perceived personalization does not have a significant effect on perceived value. It was also found that perceived personalization plays a mediating role between channel integration quality and consumer experience.

Research limitations: The limitations are related to the adopted methodology, as a non-random convenience and snowball sample was used. The data is cross-sectional and collected only in Portugal. The study was applied to omnichannel brands/retailers from various sectors and industries.

Originality: This study contributes to the development of literature in understanding the role that personalization can play in the development of the omnichannel experience. The results obtained raise pertinent questions for omnichannel retail practice. It has been proven that perceived personalization positively influences consumer experience, but it does not have a significant impact on perceived value. A possible justification for this result may be the fact that consumers show doubts regarding the privacy of their personal information, revealing the need to strengthen this dimension of channel integration quality. This presents a challenge for retailers, as while personalization can enhance customer experience, retailers must decide the level of personalization, to prevent privacy issues that may attenuate the benefits of personalization (Thaichon et al., 2024). Offering specific rewards based on consumer purchase history and personal information may contribute to increased perceived value.

The importance of personalization perception in the omnichannel consumer experience is highlighted, as consumer experience is decisive in consumer satisfaction and repeat purchase intention (Rahman et al., 2022; Rahmawati & Arifin, 2022), consolidating loyalty to the omnichannel brand/retailer. In conclusion, personalization can be perceived as something positive, resulting from the practice of one-to-one marketing. On the other hand, it can be perceived as something negative, associated with the abusive use of data collected during the omnichannel shopping journey.

Keywords: *Consumer Experience; Omnichannel; Perceived Personalization; Perceived Value.*

Acknowledgements: This work was supported by the FCT – Fundação para a Ciência e a Tecnologia (UIDB/05037/2020, and UIDB/04928/2020).

References

- Alang, T., & Nguyen, K. M. (2022). Determinants of omnichannel shoppers' perceived value and their shopping intention. *International Journal of Electronic Commerce Studies*, 13(2), 177-196. <http://dx.doi.org/10.7903/ijecs.2035>
- Alimamy, S., & Gnoth, J. (2022). I want it my way! The effect of perceptions of personalization through augmented reality and online shopping on customer intentions to co-create value. *Computers in Human Behavior*, 128, 107105. <https://doi.org/10.1016/j.chb.2021.107105>
- Hänninen, M., Smedlund, A., & Mitronen, L. (2018). Digitalization in retailing: Multi-sided platforms as drivers of industry transformation. *Baltic Journal of Management*, 13(2), 152-168. <https://doi.org/10.1108/BJM-04-2017-0109>
- Hossain, T. M. T., Akter, S., Kattiyapornpong, U., & Dwivedi, Y. (2020). Reconceptualizing integration quality dynamics for omnichannel marketing. *Industrial Marketing Management*, 87, 225-241. <https://doi.org/10.1016/j.indmarman.2019.12.006>
- Lazaris, C., & Vrechopoulos, A. (2014, June 18-20). *From multichannel to 'omnichannel' retailing: Review of the literature and calls for research* [Conference paper]. 2nd International Conference on Contemporary Marketing Issues (ICCM), Athens, Greece
- Lee, W. (2020). Unravelling consumer responses to omni-channel approach. *Journal of Theoretical and Applied Electronic Commerce Research*, 15(3), 37-49. <https://doi.org/10.4067/S0718-18762020000300104>
- Lee, Z., Chan, T., Chong, A., & Thadani, D. (2019). Customer engagement through omnichannel retailing: The effects of channel integration quality. *Industrial Marketing Management*, 77, 90-101. <https://doi.org/10.1016/j.indmarman.2018.12.004>
- Marketing Science Institute. (2020, May 07). Research priorities 2020-2022. <https://www.msi.org/article/2020-22-msi-research-priorities-outline-marketers-top-concerns/>
- Piccoli, G., Lui, T.-W., & Grün, B. (2017). The impact of IT-enabled customer service systems on service personalization, customer service perceptions, and hotel performance. *Tourism Management*, 59, 349-362. <https://doi.org/10.1016/j.tourman.2016.08.015>
- Rahman, S. M., Carlson, J., Gudergan, S. P., Wetzels, M., & Grewal, D. (2022). Perceived omnichannel customer experience (OCX): Concept, measurement, and impact. *Journal of Retailing*, 98(4), 611-632. <https://doi.org/10.1016/j.jretai.2022.03.003>
- Rahmawati, R., & Arifin, R. (2022). New journey through young customer experience in omnichannel context: The role of personalization. *Journal of Theory and Applied Management*, 15(2), 301-312. <https://doi.org/10.20473/jmtt.v15i2.36236>
- Sharma, N., & Fatima, J. (2024). Influence of perceived value on omnichannel usage: Mediating and moderating roles of the omnichannel shopping habit. *Journal of Retailing and Consumer Services*, 77, 103627. <https://doi.org/10.1016/j.jretconser.2023.103627>
- Shi, S., Wang, Y., Chen, X., & Zhang, Q. (2020). Conceptualization of omnichannel customer experience and its impact on shopping intention: A mixed-method approach. *International Journal of Information Management*, 50, 325-336. <https://doi.org/10.1016/j.ijinfomgt.2019.09.001>
- Thaichon, P., Quach, S., Barari, M., & Nguyen, M. (2024). Exploring the role of omnichannel retailing technologies: Future research directions. *Australasian Marketing Journal*, 32(2), 162-177. <https://doi.org/10.1177/14413582231167664>
- Tyrväinen, O., Karjaluoto, H., & Saarijärvi, H. (2020). Personalization and hedonic motivation in creating customer experiences and loyalty in omnichannel retail. *Journal of Retailing and Consumer Services*, 57, 102233. <https://doi.org/10.1016/j.jretconser.2020.102233>

- Wind, Y., Mahajan, V., & Gunther, R. (2003). *Marketing de Convergência: Estratégias para conquistar o novo consumidor*. Pearson Education
- Zhang, X., Park, Y., Park, J., & Zhang, H. (2024). Demonstrating the influencing factors and outcomes of customer experience in omnichannel retail. *Journal of Retailing and Consumer Services*, 77, 103622. <https://doi.org/10.1016/j.jretconser.2023.103622>

Session – “Consumer Preferences, Organizational Optimization, and Sustainability”

Chair: Raquel Pedrosa

Evaluation of visual attention and consumer preferences towards the offer of a traditional dessert in Hermosillo, Sonora

Romero-Valenzuela, Denisse Mercedes. University of Sonora, Mexico.
denisse.romero@unison.mx

Pacheco-Navarro, Ana Cristina. University of Sonora, Mexico. cristina.pacheco@unison.mx

Camarena-Gómez, Dena María Jesús. University of Sonora, Mexico.
dena.camarena@unison.mx

Abstract

Purpose: To analyze the visual attention and preferences towards traditional foods, according to the perception of young consumers, in order to deepen the understanding of this critical aspects of consumer behavior.

Methodology: *Eye-tracking* was used to study visual attention, accompanied by questionnaires to analyze the knowledge and preferences of 43 young consumers. An experiment was designed with eight product options. ‘Tobii Lab Pro’ software was used for the design, recording and analysis of the information.

Results: Participants recognize and purchase half of the brands, and product presentation is an important factor for them. *Eye-tracking* analysis reveals the importance of visual elements in traditional food packaging, confirming the relevance of the logo and labels in such packaging.

Limitations: The findings are based on a population with specific characteristics, which implies that extrapolation of the results should be taken with caution.

Originality: The study has not been presented in any other source, and we claim that the work is original.

Keywords: *Neuromarketing, Visual attention, Traditional foods, Eye-tracking, Preferences.*

1. Introduction

Traditional foods have a significant social and economic value, representing a link to the culinary and cultural heritage of a society. In the ever-changing food industry, the challenge is to develop new products that follow modern trends while maintaining the identity of traditional products (Guiné *et al.*, 2021). In this sense, some studies point out that traditional Sonoran foods have been displaced by various changes in the consumer society, leading to a loss of the culinary knowledge of the region (Pacheco-Navarro *et al.*, 2018). It has even been identified that, in the case of young people, their gastronomic preferences have been attracted by fast food models, becoming one of the groups with the greatest impact on the displacement of traditional food preparations (Sandoval Godoy *et al.*, 2022).

The analysis of traditional foods has been done from different points of view; in the literature we can find those that are oriented towards the analysis of consumer preferences, those that carry out a diagnosis and revaluation of these products, as well as those that seek to establish positioning strategies in the markets (Kim, 2018). On the other hand, it has been seen that competition in the traditional food market faces challenges to achieve a prominent position, as is the case of market saturation and the proliferation of new brands (Fatkhurahman *et al.*, 2020). Research focused on knowing the consumer's perspective on such elements allows offering criteria that seek to improve marketing strategies, such as logo design, labeling and packaging (Jakubowska, 2021). These improvements are fundamental within the context of product and place strategies since they have a direct impact on the consumer's perception and purchase decision.

In this context, the analysis of consumer visual attention takes on a prominent importance, since it allows understanding how consumers process visual information and how this influence affects their purchase behavior (Huang *et al.*, 2021). The lack of understanding of consumers' subconscious motivations by traditional marketing techniques leads to a high failure rate of new product launches, underlining the importance of addressing these needs for business success (Nyoni & Bonga, 2017).

Considering the above elements, the present study aims to analyze the visual attention and preferences towards traditional foods from the perspective of young

consumers. For this purpose, an eye-tracking instrument and questionnaires were used. The information obtained will be used to formulate more effective marketing strategies that can improve on the commercialization of traditional foods.

2. Literature Review

Traditionally, the assessment of how consumers perceive products, as well as their image and labeling, used to be based on individual feedback metrics, i.e., consumers were asked about their perceptions, which they expressed according to their own criteria. Although the resulting information is valuable, there is often a significant bias, and it does not reflect what happens in a real consumption situation (Oliveira *et al.*, 2016, Mackison *et al.*, 2010). Derived from this, it arises to use, in an alternative way, other methodologies and techniques that allow to know, not only the conscious part that the consumer can express, but also their non-conscious responses to stimuli, which reveal their true perceptions and that allows to develop a better product and brand strategy (Varela *et al.*, 2014). One of these alternative methodologies is neuromarketing, or as it has been more recently defined, neuroscience applied to marketing.

According to Olivar-Urbina (2023), neuromarketing is an innovative discipline that transforms the field of marketing by employing methods and knowledge from brain sciences to discover the psychological and emotional factors, both conscious and unconscious, that affect customer preferences for a product, a brand or an organization. Its goal is to design strategies that ensure success in the marketplace.

In this sense, eye-tracking analysis enables a deeper understanding of the role played by visual attention in the purchase decision-making process and interaction with visual stimuli in consumer environments (Motoki *et al.*, 2021; Yadete & Kant, 2023). Furthermore, it highlights the effectiveness of this technology in investigating visual attention and consumer behavior patterns in a variety of contexts, such as advertising, packaging design, and product layout in retail establishments (Chen *et al.*, 2022; Luan *et al.*, 2016). By analyzing packaging design and labeling using eye-tracking, it is possible to obtain detailed information about how consumers visually interact with

these elements and how these interactions affect their purchasing behavior. This analysis can provide valuable insights to improve product design and marketing strategies.

Thus, several studies oriented to the analysis of food products have used neuroscience to address various aspects of the market, such is the case of the study by Stoica *et al.* (2015), which shows how companies take advantage of these tools to better understand and meet the needs and desires of consumers of organic products. Along the same lines, eye-tracking studies have revealed that organic food labels can influence consumer attention and purchase decision when they are aligned with product information and consumer attitudes (Ruppenthal, 2023). Similarly, eye-tracking has been used effectively to gain insight into food choice, packaging design, in-store behavior, and consumers' emotional responses (Duerrschmid & Danner, 2018). Other studies that have used eye-tracking have found that food choice is inconsistent between virtual and real-life environments, highlighting the relevance of environmental variation when interpreting the data (Peng *et al.*, 2021).

3. Methodology

An eye-tracking analysis was performed to study visual attention, accompanied by questionnaires for the analysis of consumer knowledge and preferences (bottom-up and top-down factors suggested by Motoki *et al.*, 2021).

A traditional food from Sonora was chosen for the analysis. Among the variety available, the traditional dessert widely known as "coyotas" was selected. Miranda-Cruz (2020) notes that, according to an analysis of the availability of traditional Sonoran foods in businesses in Hermosillo, coyotas are at the top of the list of traditional desserts. This dessert is described as a kind of cookie made with a mixture of wheat flour, vegetable shortening, brown sugar, yeast, and water. The dough is formed into balls, flattened slightly, and filled with piloncillo, cajeta, walnut, peanut, or other ingredients (Miranda-Cruz, 2020; Solís-García *et al.*, 2021).

An experimental design including eight product options was implemented (Helmert *et al.*, 2017). Eight locally available brands were selected, giving priority to six of them

that had a presence on websites and social networks, platforms commonly consulted by young audiences. In addition, two popular brands in the city were included, although they lacked online presence.

The sample size was determined with practical considerations and previous literature on similar eye-tracking studies in mind. Research focused on consumer behavior regarding product strategies and purchasing decisions has employed samples ranging from approximately 20 to 40 people (Helmert *et al.*, 2017; Luan *et al.*, 2016; Mansor & Isa, 2022). In this research, a total of 43 students from the University of Sonora, Hermosillo campus, participated voluntarily. The sample was selected by a non-probabilistic method by convenience, using a call that included posters placed in common areas near the research laboratory, as well as virtual messages. Each participant read and signed an informed consent form and completed the questionnaire (before and after conducting the experiment).

'Tobii Lab Pro' software was used for the design, recording and analysis of the information, which was equipped with the 'Tobii eye tracker' camera. In the case of the stimuli corresponding to logos and packaging, they were first presented in separate images, to evaluate one product at a time, the random order of appearance of the images was used to avoid biases due to the order.

4. Results

In relation to the sociodemographic profile of the study participants, it was observed that the age ranged from 17 to 24 years, with most of them (approximately 72%) concentrated in the 19 to 22 years range. Regarding gender, 42% of the participants were female and 58% were male.

According to the responses provided in the questionnaires, the most recognized and purchased brands were: Doña María, Malu, Lulú and Doña Coyo, in that order. As for the perception of the attractiveness of the packaging, the most valued were Flor de Capomo, Doña Coyo, Doña María and Doña Lourdes. The evaluation of the attractiveness of the packaging was made on a scale of 1 to 5, where 1 represents total disagreement and 5 total agreement. It is important to note that, in relation to this

scale, the means and deviations of the packages showed minimal differences between them. In addition, it was noted that when analyzing the level of knowledge and purchase of coyotas, only two brands, Mozas and Lourdes, registered a higher percentage of purchase than knowledge. Regarding Flor de Capomo, the gap in favor of knowledge compared to purchase was minimal, registering 2.8% (Table I).

Table I: Knowledge and preferences about brands of coyotas

Brands	Previous knowledge		After the experiment	
	Known to	It has been purchased	Qualifies the packaging as attractive	
	Percentage	Percentage	Media	Est. dev.
Doña María	94.3	85.7	3.21	1.2749
Doña Elena	34.3	28.6	3.02	1.1934
Doña Coyo	42.9	37.1	3.24	1.2405
Mozas	14.3	22.9	3.12	1.1444
Malu	62.9	51.4	3.14	1.2361
Lulú	45.7	40.0	3.09	1.2207
Lourdes	14.3	20.0	3.19	1.2887
Flor de Capomo	37.1	34.3	3.29	1.2297

Source: Own elaboration

The data obtained from eye-tracking allows us to obtain graphic elements of logos and packaging. Heat maps are presented below, which show the distributions of eye fixations on the screen (areas that receive attention). Observation of logos focused on images, regardless of their central position (Figure 1). In cases where photographs of the companies' founders were included, attention was divided among several elements, so a prolonged point of attention was not generated. The brands that captured more concentrated attention were Coyotas Lulú (on the word "coyotas", which alludes to the product), Flor de Capomo (with attention in the center), Coyotas Malu (where attention was distributed across all elements, showing the reading of practically all the text, and focused on the caricatured image of the coyota) and Coyotas Lourdes (attention focused on the central image and slightly on the letters in the center).

Figure 1. Heat maps of the logos of the 8 brands.



Note: Each was presented separately. On the left are the original logos and on the right is the heat map of the logos. Source: Own elaboration based on biometrics of participants.

Figure 2 shows the packaging; attention is usually directed to the images, logo and flavor (in all cases the piloncillo flavor was chosen, as it is the most traditional). The gaze tends to focus on the center, so the participants focused their eyes on the labels of Flor de Campomo, Doña Coyo, Lourdes and Doña María. In the case of coyotas Lulú and Mozas, the attention stayed longer on the product. For the rest of the presentations where the product can be appreciated (the four lower brands), the product was located within the cold zones, indicating that consumers did not focus their attention on the appearance of the product.

Figure 2. Heat maps of the logos of the 8 brands.



Note: Each package was presented separately. On the left are the original packages and on the right is the heat map of the packages. Source: Own elaboration based on biometrics of participants.

5. Discussion

Undoubtedly, neuroscience applied to marketing is useful for the study of consumer perceptions and attitudes towards food, as expressed by some authors in their studies (Olivar-Urbina, 2023; Mackison *et al.*, 2010). Of the different techniques, eye-tracking has allowed to know, by means of heat maps, the relevance of visual components of the packaging of a traditional food, coinciding with what has been expressed by several authors (Yadete & Kant, 2023; Chen *et al.*, 2022; Luan *et al.*, 2016). When analyzing the results of the eight brands of coyotas, the relevance of the logo and labels on the packaging is noticed in the eye-tracking, agreeing with the study by Ruppenthal (2023), where it is shown how these elements influence the consumer's attention and purchase decision. However, it is also clear that further exploration is needed to know whether in the case of coyotas the heat maps that reveal preferences towards certain brands are consistent with real preferences, since authors such as Peng *et al.* (2021) conclude that choices in virtual environments are inconsistent with those made in real life.

6. Conclusions

In recent years, several methodologies related to neuroscience have been developed and have become more relevant in marketing studies. The specialized literature shows that neuroscience contributes to understanding consumer preferences, and in particular, eye-tracking has positioned itself as an effective method for analyzing the visual components of a product.

In the case of the traditional Sonoran dessert known as "coyota", the findings showed that there is recognition of four brands, which are not only identified by consumers but also purchased. It can also be seen that the presentation of the product is an important factor for consumers. In addition, it is noted that in most cases there is a discrepancy between brand awareness and the decision to purchase the products, i.e., even when a consumer identifies a brand, it does not guarantee its purchase.

On the other hand, eye-tracking analysis revealed interesting patterns of attention to logos and packaging. The heat maps show that elements such as logos and product information labels are relevant to consumers. Brands such as coyotas Lulú, Flor de

Capomo and coyotas Malu attracted more concentrated attention, while others did not generate a prolonged attention point, especially those whose product did not focus on the areas of greatest interest on the packaging. On the other hand, logo designs showing a caricatured image of the product attracted more attention from young consumers.

The findings undoubtedly provide valuable insights into consumer behavior and preferences, as well as the effectiveness of tools such as eye-tracking for packaging design and product shelf placement. While the research focuses on a specific product and population, it shows trends and preferences for a traditional food in the young consumer segment. Finally, the results correspond to a specific context, so it is necessary to continue exploring the use of eye-tracking in other age groups, foods and geographical settings to provide a more complete picture of traditional desserts. However, it should not be lost sight of the fact that the results obtained can be useful for companies in the formulation of marketing strategies and product design.

References

- Carter, A. R., Tilling, K., & Munafò, M. R. (2017). A systematic review of sample size and power in leading neuroscience journals. *bioRxiv*, 1-18. <https://doi.org/https://doi.org/10.1101/217596>.
- Chen, T., Samaranayake, P., Cen, X. Y., Qi, M., & Lan, Y. C. (2022). The Impact of Online Reviews on Consumers' Purchasing Decisions: Evidence From an Eye-Tracking Study. *Frontiers in Psychology*, 13, 1-13. <https://doi.org/10.3389/fpsyg.2022.865702>
- Duerrschmid, K., & Danner, L. (2018). Eye Tracking in Consumer Research. *Methods in Consumer Research*, 2, 279-318. <https://doi.org/10.1016/B978-0-08-101743-2.00012-1>.
- Fatkurahman, F., Hadiyati, H., & Suroto, B. (2020). Creativity and Opportunity on Traditional Food Products: Business quality in competitive environment. *IOP Conference Series: Earth and Environmental Science*, 469(1), 1-6. <https://doi.org/10.1088/1755-1315/469/1/012066>
- Guiné, R. P. F., Florença, S. G., Barroca, M. J., & Anjos, O. (2021). The duality of innovation and food development versus purely traditional foods. *Trends in Food Science and Technology*, 109, 16-24. <https://doi.org/https://doi.org/10.1016/j.tifs.2021.01.010>
- Helmert, J. R., Symmank, C., Pannasch, S., & Rohm, H. (2017). Have an eye on the buckled cucumber: An eye tracking study on visually suboptimal foods. *Food Quality and Preference*, 60, 40-47. <https://doi.org/10.1016/j.foodqual.2017.03.009>
- Huang, J., Peng, Y., & Wan, X. (2021). The color-flavor incongruency effect in visual search for food labels: An eye-tracking study. *Food Quality and Preference*, 88(104078), 10-06. <https://doi.org/10.1016/j.foodqual.2020.104078>

- Jakubowska, D. (2021). Market differentiation potential of traditional food quality labels: consumer and producer expectation. *Entrepreneurship and Sustainability Issues*, 9(4), 239-250. [https://doi.org/10.9770/jesi.2021.9.1\(14\)](https://doi.org/10.9770/jesi.2021.9.1(14))
- Kim, H.-S. (2018). A Study on the Recognition of the Traditional Market Food. *The Journal of the Korea Contents Association*, 18(11), 277–284. <https://doi.org/10.5392/JKCA.2018.18.11.277>
- Luan, J., Yao, Z., Zhao, F. T., & Liu, H. (2016). Search product and experience product online reviews: An eye-tracking study on consumers' review search behavior. *Computers in Human Behavior*, 65, 420-430. <https://doi.org/10.1016/j.chb.2016.08.037>
- Mansor, A. A., & Isa, S. M. (2022). Areas of Interest (AOI) on marketing mix elements of green and non-green products in customer decision making. *Neuroscience Research Notes*, 5(3), 1-5. <https://doi.org/10.31117/neuroscirn.v5i3.174>
- Mackison, D., Wrieden, W. L., & Anderson, A. S. (2010). Validity and reliability testing of a short questionnaire developed to assess consumers' use, understanding and perception of food labels. *European journal of clinical nutrition*, 64(2), 210-217. <https://doi.org/10.1038/ejcn.2009.126>
- Miranda-Cruz, A. M. (2020). La innovación en los alimentos tradicionales sonorenses y su comercialización en la región Sonora-Arizona. [Tesis de Maestría, Universidad de Sonora].
- Motoki, K., Saito, T., & Onuma, T. (2021). Eye-tracking research on sensory and consumer science: A review, pitfalls and future directions. *Food Research International*, 145 (110389), 1-18. <https://doi.org/10.1016/J.FOODRES.2021.110389>
- Nyoni, T., & Bonga, W. G. (2017). Neuromarketing: No brain, No Gain! *Dynamic Research Journals*, 2(2), 17-29. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2925857
- Oliveira, D., Machín, L., Deliza, R., Rosenthal, A., Walter, E., Gímenez, A., & Ares, G. (2016). Consumers' attention to functional food labels: Insights from eye-tracking and change detection in a case study with probiotic milk. *Food Science & Technology*, 68, 160-167. <https://doi.org/10.1016/j.lwt.2015.11.066>
- Pacheco-Navarro, A. C., Sandoval-Godoy, S. A., & Camarena-Gómez, D. M. (2018). Sociedad de Consumo y franquicias de comida rápida: Factores contribuyentes para las transformaciones en el consumo alimentario. *Vértice Universitario*, 20(78), 28–36.
- Peng, M., Browne, H., Cahyadi, J., & Cakmak, Y. (2021). Predicting food choices based on eye-tracking data: Comparisons between real-life and virtual tasks. *Appetite*, 166(105477), 1-7. <https://doi.org/10.1016/j.appet.2021.105477>
- Ruppenthal, T. (2023). Eye-Tracking Studies on Sustainable Food Consumption: A Systematic Literature Review. *Sustainability*, 15(16434), 1-32. <https://doi.org/10.3390/su152316434>
- Sandoval Godoy, S. A., Pacheco Navarro, A. C., & Camarena Gómez, D. M. (2022). Prácticas alimentarias y significados asociados con el consumo de comida rápida en franquicias de la ciudad de Hermosillo, Sonora: un modelo exploratorio basado en los cambios generacionales. *Región y Sociedad*, 34, 1-30. <https://doi.org/10.22198/rys2022/34/1628>
- Solis-García, S., Mendoza-Díaz, S., Juárez-García, M., Mancillas-Medina, J., Ávila-Ontiveros, M., Leyva-Maldonado, A., & Ramírez-García, J.F. (2021). Evaluación nutracéutica de un pan tipo coyota a partir de harinas de trijo, frijol y nopal con mermelada de trigo. *Investigación y Ciencia*, 29(82), 24-32.
- Varela, P., Antúnez, L., Silva-Cadena, R., Gímenez, A., & Ares, G. (2014). Attentional capture and importance of package attributes for consumers' perceived similarities and differences among products: A case study with breakfast packages. *Food Research International*, 64, 701-710. <https://doi.org/10.1016/j.foodres.2014.08.015>
- Yadete, F. D., & Kant, S. (2023). Neuro-Marketing in Understanding Consumer Behavior: Systematic Literature Review. *Radinka journal of science and systematic literature review*, 1(1), 1-13. <https://doi.org/10.56778/rjslr.v1i1.86>

Finding a mix of renewable energy for different stakeholders by applying multi-criteria techniques

Amelia Bilbao-Terol. Quantitative Economics Department. University of Oviedo. Spain.
ameliab@uniovi.es

Verónica Cañal-Fernández. Quantitative Economics Department. University of Oviedo. Spain. vcanal@uniovi.es

Carmen González-Pérez. Quantitative Economics Department. University of Oviedo. Spain.
E-mail: carglezperez@gmail.com

Abstract

This paper proposes a multi-criteria model to solve the planning problem of a renewable energy portfolio in which economic, social, and environmental sustainability objectives are considered. In the first stage, a parametric set of Fuzzy Hierarchy Goal Programming models is built to find a collection of energy mixes that satisfy soft priorities according to the corresponding economic, social, or environmental profile. In the second stage, we determine the weights of the goals based on stakeholder preferences using the Extended Best-Worst method. We then calculate the utility of each renewable energy portfolio detected in the first stage by applying a value function associated with the importance of the objectives. Finally, the best energy mix for each profile is found by applying a behavioral TOPSIS method. The proposal is applied to Spain. This method allows us to find renewable energy systems that guarantee good economic performance and environmental and social benefits.

Purpose: A model that is able to flexibly take into account the preferences of different stakeholders when designing a portfolio of alternative renewable technologies. A hybrid methodology Goal Programming with a Fuzzy Hierarchy (GPFH) model combining with a Behaviour TOPSIS is proposed to achieve this purpose.

The methodology is applied in Spain for 2025 and 2030 according to the provisions granted for the Reference Scenario 2020 model (Commission et al., 2021).

Methodology: The pioneering model of goal programming (GP) was proposed by Charnes and Cooper (1955) and further developed by several authors, including Lee (1972), Ignizio (1985), and Romero (2014).

GP has become one of the most popular techniques within the field of multiple criteria decision-making (Jones & Tamiz, 2010) and is one of the most widely used methods due to its applicability to real problems (see, e.g., Bilbao-Terol et al., 2012; Chang, 2015; Hocine, 2020).

The methodology unfolds in two stages. In Stage 1, a Goal Programming Model with a Fuzzy Hierarchy is applied.

Assume that a stakeholder with a specific profile wants to propose a Renewable Energy (RE) portfolio that addresses the conflicting impacts of the different technologies according to her preferential structure. To incorporate the priority structure of the impacts for the stakeholders, we develop a decision goal programming model in which the particular preferred solutions of the stakeholders and their imprecise hierarchy structure are taken into account.

Stage 1 gives a finite set of portfolios in which the corresponding stakeholder should choose her preferred solution according to the importance awarded to the impacts of each alternative.

In Stage 2, we select the best portfolio by applying Behavioural TOPSIS with Best-Worst weights. We address a weighting process to determine the relative importance of the impacts according to the profile of the corresponding stakeholder. We use the Extended Best-Worst method (Bilbao-Terol et al., 2022), which determines the priority weights from interval pairwise comparison judgments and is based on the Best-Worst (BW) method (Rezaei, 2015) for constructing the incomplete interval comparison matrix. We solve an Extended Best-Worst (EBW) method considering the most important criterion (best) and the least important criterion (worst) for the decision maker. The results of EBW are applied to a value function to assess the alternative RE portfolios. Lastly, a Behavioural TOPSIS is used to find the best RE portfolio.

Results: The proposed MCDM methodology allows us to use six impacts, specifically Total Employment (APPA, 2022), Energy return on investment (Mekonnen et al., 2015), Land-use footprint (King et al., 2023), Levelised Cost Electricity (IRENA, 2023), Lifecycle assessments of GHG emission values (IRENA, 2022), Water footprint (Mekonnen et al., 2015) to assess six renewable technologies: Bioenergy, Concentrated Solar Power, Hydropower, Offshore and Onshore Wind, and Solar Photovoltaic Power. We present three profiles: economic, ecological, and social. Each profile is determined by fuzzy relations modelled according to the proposed methodology, and a set of weights is obtained by applying the EBW method. The results show that the largest share corresponds to onshore wind in the economic and environmental profiles.

For the economic profile, the largest share corresponds to onshore wind, the technology with the lowest LCOE. Also, Bioenergy and Offshore wind increase their use concerning generation in 2023.

For the environmental profile, the largest share corresponds to onshore wind, the technology with the lowest LU. Bioenergy decreases its share compared to generation in 2023 due to its highest LU and high WF. Also, the SPV decreased its share with respect to generation in 2023 due to its highest LCA, and the CSP and Hydropower decreased their share with respect to generation in 2023.

Finally, the social profile's largest share corresponds to solar power and wind. Bioenergy's share with respect to generation will decrease in 2023 due to its highest LU and high WF.

Research limitations: In future research we want to address the treatment of imprecision and ambiguity in the coefficients that determine the performance of each technology in each of the criteria considered. Our idea is to extend the work of Inuiguchi (1991), Arenas et al. (1999) by proposing an interval goal programming.

Originality: A new methodology that, in two stages, achieves an RE portfolio according to the soft priorities of DMs. Fuzzy relationships allow us to overcome the drawbacks of the lexicographic order. The different energy profiles have different priorities for the considered impacts, but they cannot forget the impacts situated in inferior positions. Therefore, fuzzy relations are suitable in energy planning.

Keywords: *Renewable energy sources; Goal Programming; Imprecise hierarchy; Best and Worst Extended; Behavioural value function; TOPSIS.*

Acknowledgements: This work was supported by Project PAPI-23-GR-2011-0049

References

- APPA, 2022. Estudio del Impacto Macroeconómico de las energías Renovables en España. Technical Report. Asociación de Empresas de Energías Renovables, Deloitte. España. URL: <https://www.appa.es>.
- Arenas Parra, M. and Bilbao Terol, A. and Rodríguez Uría, M.V. (1999): Solution of a possibilistic multiobjective linear programming problema. *European Journal of Operational Research* 119(2), 338 – 344. 10.1016/S0377-2217(99)00135-6.
- Bilbao-Terol, A., Arenas-Parra, M., Quiroga-García, R. Bilbao-Terol, C. (2022). An extended best–worst multiple reference point method: application in the assessment of non-life insurance companies. *Operational Research* 22, 5323–5362.
- Bilbao-Terol, A., Mar Arenas-Parra, M., Cañal-Fernández, V. (2012). Selection of Socially Responsible Portfolios using Goal Programming and fuzzy technology, *Information Sciences* 189, 110-125, <https://doi.org/10.1016/j.ins.2011.12.001>.
- Chang, C.T. (2015). Multi-choice goal programming model for the optimal location of renewable energy facilities. *Renewable and Sustainable Energy Reviews* 41, 379-389.
- Charnes, A., Cooper, W.W., Ferguson, R. (1955). Optimal estimation of executive compensation by linear programming. *Management Science* 1, 138-151.
- Commission, E., for Climate Action, D.G., for Energy, D.G., for Mobility, D.G., Transport, De Vita, A., et al. 2021. Reference scenario 2020 (ref2020). summary report: Energy, transport and ghg emissions – trends to 2050.
- Hocine, A., Guellil, M.S., Dogan, E., Ghouali, S., Kouaissah, N. (2020). A fuzzy goal programming with interval target model and its application to the decision problem of renewable energy planning. *Environmental and Ecological Statistics* 27, 527–547.
- Ignizio, J.P. (1985). *Introduction to linear goal programming*. Sage Beverly Hills, CA.
- Inuiguchi, M., Kume, Y. (1991). Goal programming problems with interval coefficients and target intervals. *European Journal of Operational Research* 52, 3, 345–360.
- IRENA (2022). *Methodology: Avoided Emissions Calculator*. Technical Report. International Renewable Energy Agency. URL: <https://www.irena.org/Data/View-data-by-topic/Climate-Change/Avoided-Emissions-Calculator>.
- IRENA (2023). *Renewable power generation costs in 2022*. Technical Report. International Renewable Energy Agency. Abu Dhabi.
- King, R., Benton, T., Froggatt, A., Harwatt, H., Quiggin, D., Wellesley, L. (2023). *The emerging global crisis of land use: How rising competition for land threatens international and environmental stability, and how the risks can be mitigated*. London: Royal Institute of International Affairs.
- Lee, S.M. (1972). *Goal programming for decision analysis*. Auerbach Publishers, Philadelphia.
- Mekonnen, M.M., Gerbens-Leenes, P., Hoekstra, A.Y. (2015). The consumptive water footprint of electricity and heat: a global assessment. *Environmental Science: Water Research & Technology* 1, 285–297.
- Rezaei, J. (2015). Best-worst multi-criteria decision-making method. *Omega*, 53, 49–57. <https://doi.org/10.1016/j.omega.2014.11.009>.
- Romero, C. (2014). *Handbook of critical issues in goal programming*. Elsevier.

Relevant aspects for an optimal organization of the company.

María Jesús Guillén Palomino. *Universidad de Extremadura, España.* mjguillen@unex.es

Abstract

Purpose: This study aims to analyse the internal and external audit strategies implemented by SMEs in Extremadura, evaluating their effectiveness in terms of their impact on reducing fraud risks and improving operational efficiency. The following measures of effectiveness will be used: (1) the number of frauds detected, (2) the average incident resolution rate and (3) internal customer satisfaction. The study aims to identify the best audit practices in this type of companies, in order to promote more effective and efficient strategies that contribute to the improvement of business management and quality. It is expected that the results of this study will be useful for SMEs in Extremadura, auditors and policy makers, in order to improve audit practice and decision making in this type of companies.

Methodology: To achieve this objective, the study was based on descriptive qualitative research. This approach was chosen to collect standardised data on audit strategies in a representative sample of SMEs in Extremadura. The target population was the set of SMEs existing in the region of Extremadura. To select a representative sample, stratified random sampling was used, considering the following stratification variables: province (Cáceres and Badajoz), company size (small and medium-sized), economic sector. The final sample consisted of 140 SMEs, randomly selected within each stratum. The data collection instrument was a structured questionnaire, specifically designed for the study. The questionnaire included questions on the following variables: general company information, auditing practices, and external certifications and assessments. Data collection took place between March and May 2020. The following channels were used to distribute the questionnaire: email, social media and phone calls. To facilitate companies' participation, the questionnaire was designed in an online format, using the Google Drive/Forms platform. This allowed companies to complete the questionnaire conveniently and securely from any device with internet access. In terms of data analysis, the data collected was analysed using descriptive and inferential statistical techniques. Descriptive techniques were used to describe the characteristics of the sample and the frequencies of the different variables. Inferential techniques were used to identify significant relationships between variables and to test specific hypotheses. Finally, the study was conducted in accordance with the ethical principles of scientific research. Informed consent was obtained from all participating companies prior to data collection and confidentiality of the information provided by the companies was guaranteed.

Results: The results of the study reveal that most SMEs in Extremadura do not have quality systems in place. However, companies recognise the importance of audits as a key tool to improve their management. Despite this, the use of audits is limited due to their high cost and lack of awareness. The research also found that there is a higher participation of companies in Cáceres and in sectors such as construction and food in carrying out audits. Finally, the results suggest that SMEs in Extremadura need to implement better auditing practices to improve their management and competitiveness. It is recommended that government bodies, business chambers and auditing firms work together to promote the adoption of best practices in this area.

Limitations: It should be noted that this study has several limitations which, moreover, represent future lines of research. The sample used is 140 SMEs, which may not be representative of all SMEs in Extremadura. Moreover, the low response rate, especially in Badajoz, could bias the results. On the other hand, the context of the pandemic might have influenced enterprises' responses, especially with regard to teleworking and business closures, which made it difficult to conduct face-to-face surveys. The use of online surveys, telephone calls and Google Drive forms may have limited the scope of the study, excluding businesses that do not have internet access or do not respond to telephone surveys. However, despite the limitations mentioned above, the results are interesting enough to justify and extend the research to current and comparative studies with other SMEs in other regions.

Originality: The study on SMEs in Extremadura and their relationship with audits is distinguished by its regional focus, its analysis of business heterogeneity, its focus on internal audit, its assessment of management quality, its detailed analysis of audit practices, its identification of gaps and needs, and its potential contribution to decision making.

Keywords: *SMEs; organization; human resources; auditing; quality.*

Environmental Sustainability and Business Efficiency in Waste Firms

Pilar Alberca. Department of Business and Accounting, Faculty of Economics and Business Administration. National Distance Education University (UNED), Spain. palberca@cee.uned.es

Laura Parte. Department of Business and Accounting, Faculty of Economics and Business Administration. National Distance Education University (UNED), Spain. lparte@cee.uned.es

Abstract

Purpose: Environmental efficiency is essential for promoting responsible stewardship of natural resources, protecting ecosystems, and building a sustainable future for all. This research focuses on evaluating the efficiency of firms engaged in waste collection industry both hazardous and non-hazardous, as it plays a crucial role in advancing Sustainable Development Goals and Circular Economy principles. Despite increasing adoption of circular models by businesses, there remains ample room for improvement.

Methodology: In this study, non-parametric frontier Data Envelopment Analysis (DEA) methodology is used to analyze efficiency in the waste industry. DEA modelling offers a flexible and powerful approach for evaluating efficiency and performance across a wide range of contexts, making it a valuable tool for decision-makers in various industries and sectors. To analyze the efficiency of companies in the waste industry, a factor-oriented DEA model is used with the modeling of Banker et al. (1984),

Results: Findings suggest opportunities for enhancing efficiency in waste industry. Notably, non-dangerous waste collection proves to be more efficient compared to hazardous waste. The longitudinal analysis reveals cyclic trends over the period, with efficiency patterns resembling across both waste collection subsectors.

Research limitations: This study's main limitations pertain to the analyzed time frame, which warrants extension to encompass a broader temporal scope, and the potential for conducting international investigations.

Originality: Our study's primary outcomes provide critical insights into the waste collection industry, offering valuable indicators for regional strategies and policymakers to align with EU legislation and directives. Within the empirical framework of regional efficiency, the results also yield noteworthy implications for guiding public policies and fostering the Circular Economy agenda.

Keywords: *Sustainable development, Business performance, Circular Economy Models, Environmental commitment, Non-parametric DEA models, Waste collection activities*

Acknowledgements: Spanish Ministry of Economy, Industry and Competitiveness, Ref project ECO2016-79659-R; The Ministry of Science and Innovation, PID2020-115700RB-I00; UNED/Santander, Ref project 2020V/EU-UNED/04.)

Session – “Organizational Behavior and Societal Impact”

Chair: Henrique Pires

Residents Perceptions of Digital Nomadism Impacts

Silva, C. Polytechnic Institute of Viseu, Portugal. csilva@estgv.ipv.pt

Reis, M. Polytechnic Institute of Viseu, Portugal. manuelreis@estgv.ipv.pt

Abstract

Purpose: Academic literature on digital nomadism has grown exponentially in the last decade (Bednorz, 2024). However, despite its potential transformative effect on destinations, the literature has paid little attention to the destination communities in which digital nomads live (Hannonen, Quintana & Lehto, 2023). Within this context and to address this gap, the present research intends to analyse residents' perceptions of digital nomadism impacts.

Methodology The present work is based on a quantitative research approach using an online questionnaire shared on social media between October and December.2022 and applied to residents of small towns in the Central Region of Portugal. A final sample of 438 valid questionnaires was obtained.

The survey instrument considered two sections. The first one captured residents' perceptions of the Region's attractiveness for digital nomads, within a 5-point rating scale from 1 not important at all to 5 extremely important. And a second section measured residents' perceptions of tourism impacts considering positive and negative and cultural, social, economic, and environmental effects. It was used a 5-point rating scale: from 1 strongly disagree to 5 strongly agree.

Results Findings reveal that residents perceive positive economic and cultural impacts and negative social impacts. On the other hand, there are significant differences regarding the relative weight of the different impacts. Economic impacts are valued significantly higher than cultural and social impacts, and cultural impacts are valued significantly higher than social impacts. Surprisingly there are no significant results concerning with environmental effects.

Research limitations: There are some limitations that must be considered. One limitation is regarded to dimensions of tourism impacts. The study might overlook and thus not consider all dimensions of the effects of the digital nomadism in the destinations. Another limitation is related to the survey instrument. Being a questionnaire, a structured tool, it could be limitative to an open-ended answer. Finally, the work only considers one destination setting, the Central Region of Portugal.

Originality: Filling the knowledge gap about destination communities' perceptions in which digital nomads live is relevant taking into consideration the current digital nomadism increase. In fact, and according to experts' predictions, by 2035 digital nomads may have surpassed even one billion which can have a tremendous impact in destinations.

Keywords: *Tourism; Digital Nomads; Impacts*

References

- Bednorz, J. (2024). Working from anywhere? Work from here! Approaches to attract digital nomads. *Annals of Tourism Research*, 105(3),103715.
- Hannonen, O., Quintana, T.A. & Lehto, X.Y. (2023). A supplier side view of digital nomadism: The case of destination Gran Canaria. *Tourism Management*, 97, 104744.

Risk Perceptions Differences between Generations within the COVID-19 Pandemic

Silva, C. Polytechnic Institute of Viseu, Portugal. csilva@estgv.ipv.pt

Seabra, C. University of Coimbra, Portugal. cseabra@uc.pt

Reis, M. Polytechnic Institute of Viseu, Portugal. manuelreis@estgv.ipv.pt

Abstract

Purpose: It is estimate that Covid-19 has been responsible for almost 7.000.000 deaths in the World (WHO, 2023). The COVID-19 pandemic increased the risk perception among the general population worldwide, with differences between the several generations. Within this context, the main purpose of the present research is to measure risk perception by knowledge, fear and beliefs among Baby Boomers, X, Y and Z generations during the COVID-19 pandemic.

Methodology: Data were collected through an online questionnaire shared on social media that was made available between October 1st and December 15th of 2022. The inclusion criteria were individuals living in residents in Portugal territory who intends to be (national or international) travelers in the short/medium term. A total of 960 useable questionnaires was collected, distributed by the generation cohort: Baby Boomers (n=220), Generation X (n=255), Generation Y (n=240) and Generation Z (n=245).

Results: The findings suggest that risk perceptions differ between generations. In fact, the results show how differently COVID-19 pandemic affected the Baby Boomers, Generation X, Generation Y and Generation Z, regarding to risk perception: (1) Knowledge is significantly influenced by generation. Generation Z has a significantly lower level of knowledge than the other generations (Baby Boomers, X and Y). Generation Y also has a significantly lower level of knowledge than Baby Boomers. (2) The level of beliefs is also significantly influenced by generation. The Baby Boomers Generation has a significantly higher level of beliefs than the remaining generations (X, Y and Z). And (3) the level of fear is influenced by generation. The Generation Z has a significantly higher level of fear than the other generations (Baby Boomers, X and Y). Generation Y also has a significantly higher level of fear than Generation X.

Research limitations: The present study has some limitations that should be consider. Despite the reliability of the structured techniques, there is still the risk of not have been considered other important dimensions for the respondents regarding travel risk perception during the COVID-19 pandemic. Also, the study was carried out in the final of 2022 with the possible prospect of the pandemic ending soon, which may influence the perception of inherent risk.

Originality: Previous studies indicate the relevance of the generational analysis in understanding perceptions and behaviors (Riviera, Semrad & Croes, 2015; Fishman, 2016). Although generations' cohorts are widely explored in literature (Robinson & Schanzel, 2019), the studies of generational differences within tourism context remains fragmented (Yang & Lau, 2019).

Keywords: *Tourism; Risk Perception; Generations*

References

- Riviera, M., Semrad, K., & Croes, R. (2015). *The Five E's in Festival Experience in The Context of Gen Y: Evidence From A Small Island Destination*. Orlando, Florida.
- Robinson, V.M. & Schänzel, H.A. (2019). A tourism inflex: Generation Z travel experiences. *Journal of Tourism Futures*, 5(2), 127-141.
- WHO World Health Organization (2023). *COVID-19 Epidemiological Update* (Ed.162), 1-26.
- Yang, F.X. & Lau, V.M-C. (2019). Experiential learning for children at World Heritage Sites: The joint moderating effect of brand awareness and generation of Chinese family travelers. *Tourism Management*, 72, 1-11.

The Effect of Capital Structure on Firm Value: A Study of Companies Listed on PSI20 and IBEX5

Clara Pires. Polytechnic Institute of Beja, CEOS.PP (ISCAP), Portugal. clara.pires@ipbeja.pt

Sandra Bailoa. Polytechnic Institute of Beja, CiTUR (IPBeja), CEOS.PP (ISCAP), Portugal. sandra.bailoa@ipbeja.pt

Ana Cantarinha. Polytechnic Institute of Beja, CIMA (UÉvora), Portugal. ana.cantarinha@ipbeja.pt

Nuno Almeida. Polytechnic Institute of Beja, Student of Master in Finance and Accounting (IPBeja), Portugal. nunoamalmeida@gmail.com

Abstract

Purpose: This work aims to investigate the relationship between capital structure and firm value for companies listed on PSI 20 and IBEX 35. The sample consists of 14 companies listed on the PSI 20 and 15 companies listed on the IBEX 35. The companies belong to different sectors of activity. The study was carried out between 2018 and 2022. Return on Assets (ROA) and Return on Equity (ROE) were considered to measure the company's value, they are the dependent variables. On the other hand, the independent variables related to the capital structure of companies are Debt Ratio (GE) and Long-term loan coefficient (LTA), Short-term loan coefficient (STA). It was also intended to verify whether there was any relationship between the Enterprise Size (Size) and DUMMY (to distinguish PSI20 companies from IBEX 35 companies) in the firm value.

Methodology: The methodology used is a panel data model, a pooled OLS model in the period from 2018 to 2022. Thus, using a balanced panel in the present study, it was possible to identify the variables of all companies throughout of the entire period under analysis. The software chosen for analysing the empirical model was the R Studio. The data base was the SABI.

Results: It was possible to verify that the variables: Debt ratio and Long-term loan coefficient exhibits a positive effect on firm value, both in ROA and ROE. On the other hand, Short-term loan coefficient exhibit statistically significant in firm value, measured with ROA. The DUMMY variable, used to distinguish PSI20 companies from IBEX 35 companies, shows that the impact of capital structure on company value is greater in IBEX 35 companies than in PSI 20 companies.

Research limitations: Macroeconomic variables were not analysed: such as, for example, the recent increase in Euribor. On the other hand, no variable was used to measure the impact of the recent pandemic and war. In future work, these variables will be used.

Originality: It is the first work in which a study is carried out based on companies listed on PSI 20 and IBEX 35. A comparative analysis between Portugal and Spain on the capital structure of companies and their value, measured by ROE and ROA.

Keywords: *Firm Value, Profitability, Capital Structure, PSI 20, IBEX 35.*

1. Introduction

The topic related to a company's capital structure is considerably debated around the world. There are companies that finance their investments with own capital and others with more debt capital. The fact that a company finances itself more with own capital or with debt capital has an elevated influence on its performance, profitability, value, among others. This subject is interesting, but somewhat complex. For this reason there are different theories of capital structure, each with its advantages and weaknesses, namely the classic work of Modigliani and Miller, the Trade-off theory, Pecking order theory, Agency theory, among others.

Thus, the objective of this paper is to analyse the relationship between capital structure and firm value for companies listed on PSI 20 and IBEX 35. To this purpose, the SABI database was used, and a sample of 14 companies listed on the PSI 20 and 15 companies listed on the IBEX 35 was studied. These companies, from different sectors of activity, were analysed in the period between 2018 and 2022. The dependent variables considered were ROE and ROA which were used to measure the firm value. The independent variables were: GE, Size, SOL, PaíSE, LTA and STA.

This paper is structured as follows. Section 2 presents a brief literature review. Section 3 presents the methodology. Section 4 presents the results and section 5 the discussion of the results. Finally, section 6 provides the main conclusions.

2. Literature Review

A company's capital structure concerns the decision between the two main sources of financing available to meet financial needs, equity capital and/or third-party capital (Silva, 2012). Capital structure is a topic in the financial area that has been the subject of various research over time. According to Bui et al. (2023) capital structure is commonly known as financial structure or financial leverage and indicates the proportion of debt and equity used to fund a business's asset formation.

The issue of the relationship between financing decisions and the value of companies is controversial, and this has been a widely debated topic without reaching a consensus. In literature there is a set of traditional theories that sought to explain companies' financing decisions and their consequences for the capital structure, such as Agency Cost Theory (Jensen & Meckling, 1976); Durand's Classical Theory (Durand, 1952); the Theory of Modigliani and Miller (Modigliani & Miller, 1958); Trade-Off Theory (Myers & Majluf, 1984); Pecking Order Theory (Myers & Majluf, 1984). These theories sought to explain companies' financing decisions and their consequences for the capital structure, considering certain conditions.

Furthermore, several recent studies have analysed the influence of capital structure on firm value and performance. Some research has found that capital structure has a positive impact on corporate value and financial performance

(Tripathi et al., 2024; Bui et al., 2023; Nguyen et al., 2023; Jin & Xu, 2022; Natsir & Yusbardini, 2020; Ayuba et al., 2019; Ramli et al., 2019; Tran, 2019; Hirdinis, 2019; Oliveira, 2015). In other studies, it was found that capital structure has a negative impact on firm value and profitability (Prenaj et al., 2023; Gralewska & Białek-Jaworska, 2022; Vu Thi & Phung, 2021; Syofyan et al., 2020; Cristóvão, 2019; Dang et al., 2019; Andersson & Minnema, 2018; Seetanah et al., 2014; Loncan & Caldeira, 2014; Dawar, 2014). And in some studies, there was no influence of capital structure on firm value (Lima et al., 2012; Jiraporn & Liu 2008; Ebaid 2009). The diversity of contexts in which studies were carried out has led to different findings and conclusions.

3. Methodology

The methodology used is a panel data model, a pooled OLS in the period from 2018 to 2022. Thus, using a balanced panel it was possible to identify the variables of all companies throughout of the entire period under analysis. The Pooled model was chosen because it achieves the best results, given the small dimension of the sample. The software chosen for analysing the empirical model was the R Studio. The dependent variables are the Return on Equity (ROE) and the Return on Assets (ROA). These variables measure the companies value.

The independent variables are the Debt Degree (GE), Long-term loan coefficient (LTA), Short-term loan coefficient (STA), Enterprise size (Size), Solvability (SOL) and DUMMY (to distinguish PSI 20 companies - Portugal from IBEX 35 companies – Spain). The variables are defined as follows:

- Debt Degree (GE) measures the amount that liabilities cover the total investment or total assets.

- Long-term loan coefficient (LTA) is defined as the percentage of long-term assets to total assets.
- Short-term loan coefficient (STA) is defined as the percentage of short-term assets to total assets.
- Enterprise size (Size) computed as the logarithm of the total companies' assets. This proxy is extensively used in the prior literature.
- Solvability or capital Adequacy (SOL) is defined as own funds over total liabilities.
- DUMMY (allows us to distinguish Portuguese companies – PSI 20 from Spanish ones – IBEX 35).

The main objective of this study is to analyse the effect of capital structure on firm value, of 14 companies listed on the PSI 20 and 15 companies listed on the IBEX 35, over the period 2018 – 2022. The panel dataset is composed of annual data retrieved from SABI. It is presented a balanced panel data because information is available for all 29 companies for the five years under study. The model is described as follows:

$$Y_{i,t} = \beta_0 + \sum_{k=1}^7 \beta_k X_{ki,t} + \epsilon_{i,t}$$

Where:

$Y_{i,t}$ = ROE and ROA from company $i = 1, \dots, 29$ and year $t = 1, \dots, 5$ (2018 – 2022)

β_0 = constant and β_k = coefficients to be estimated by the model

X = vector of the explanatory variables

$\epsilon_{i,t}$ = random error

Based on R Studio software three models were tested: the pooled OLS, the fixed effects model and the random-effects model. The Breusch-Pagan test was applied to analyse the existence of heteroscedasticity. Based on the test carried out, it is concluded that it does not exist. In this sense, the random-effects model was not chosen. The most appropriate test in our sample was the pooled OLS.

4. Results

The model considered five variables. The description of these variables is presented in the following table I.

Table I: Summary statistics

Variable	N	Mean	Std. Dev.	Min	Max
GE	145	0.6789	0.1315	0.4120	0.9690
Size	145	22.23	1.4608	19.79	25.76
SOL	145	0.5362	0.3039	0.0345	1.7363
LTA	145	0.4065	0.1360	0.0436	0.7322
STA	145	0.2887	0.1931	0.0133	0.8829
ROE	145	0.1575	0.1165	0.0028	0.7152
ROA	145	0.0477	0.0414	0.0008	0.2911

Source: Own elaboration based on R Studio results.

For each of the variables, the mean, standard deviation, minimum and maximum value are presented. On average, the 29 selected companies have a return on equity (ROE) of 15.75%, with a standard deviation of 11.65%. Regarding return on assets (ROA), companies present an average indicator of 4.77%, with a standard deviation of 4.14%. Standard deviation showing large profitability

heterogeneity among the companies in our sample, both in ROE and ROA. The mean of indebtedness total (GE) is 67,89%, with a standard deviation of 13,15%. The mean of Long-Term indebtedness level (LTA) is 40,65%, and the mean of Short-Term indebtedness' level (STA) is 28.87%.

According to the Pearson's correlation Matrix (Table II) for the independent variable, it was found that the Debt Degree (GE) and Solvability or capital Adequacy (SOL) variables had a high correlation (-0.837). However, according to the literature the VIF (Variance Inflation Factors) values would only be problematic if they were higher than 5. In this sense, it is verified that there aren't collinearity problems between independent variables (Table III).

Table II: Pearson's Correlation Matrix for the independent variables

	GE	Size	SOL	LTA	STA
GE	1				
Size	0.087	1			
SOL	-0.837	-0.153	1		
LTA	0.105	0.116	-0.076	1	
STA	0.045	-0.350	-0.048	0.205	1

Source: Own elaboration based on R Studio results.

So, in table III it is possible to verify that the two variables that show the highest correlation also show the highest collinearity, but all values are lower than 5. Hence the non-existence of collinearity problems.

Table III: VIF – Variance Inflation Factors

GE	Size	SOL	LTA	STA	PAÍS
3.3937	1.5152	3.4389	1.1086	1.2427	1.3255

Source: Own elaboration based on R Studio results.

The results are presented in table IV and V. Table IV shows that the Pooled model is considered appropriate, given the results of the F statistic, which is significant at 1% level (p-value: 1.1687e-06). The R-squared is 54%, meaning that 54% of the variance of ROE is explained by the set of independent variables applied. Of particular significance appears Size, statistically significant at 1% level. This variable (Enterprise size) has a positive impact in companies value (ROE) meaning that the biggest companies (measured by the logarithm of the total companies' assets) have higher firm value (ROE). The variable LTA and GE are statistically significant at 5% level. The LTA variable shows that when the higher the long-term loan coefficient, the lower the company's value, measured by ROE. Higher dependence on creditors (long-term loans) implies a lower value of ROE. On the other hand, when the total Debt degree increase, the firm value decrease. The higher dependence on creditors in the total investment reduces the value of ROE. Also, with statistically significant at 5% level appear the variable PaísE (Dummy variable). This variable shows that Spanish companies have a higher ROE value than Portuguese companies.

Table IV: Regression results

Y = ROE	Coef. (β)	Cluster robust Standard Error	t	p-value
GE	-0.081**	0.044	1.85	0.035

Size	0.077***	0.002	-2.96	0.003
SOL	0.008	0.019	0.42	0.674
PaísE	0.001**	0.007	-0.25	0.039
LTA	-0.043**	0.024	-1.78	0.046
STA	-0.009	0.018	0.54	0.591
Constant	0.204***	0.061	3.38	0.001
R-Squared:	0.54084			
Adj. R-Squared:	0.50205			

Note: *, **, *** represent significance at the 10%, 5% and 1% level.

Source: Own elaboration based on R Studio

Table V shows that the Pooled model is considered appropriate, given the results of the F statistic, which is significant at 1% level (p-value: 5.1274e-06). The R-squared is 57%, meaning that 57% of the variance of ROA is explained by the set of independent variables applied. Of particular significance appears GE, Size and LTA. These variables are statistically significant at 1% level. The LTA variable has higher statistical significance in ROA than in ROE. The higher the company's long-term debt, the lower its firm value, measured by ROA. Higher dependence on creditors (long-term loans) implies a lower value of ROA. The impact is more evident in ROA than in ROE. The degree of indebtedness or debt degree is more statistically significant in ROA than in ROE. Also, with statistically significant at 5% level appear the variable PaísE (Dummy variable) and the STA. This variable DUMMY shows that Spanish companies have a higher ROA value than Portuguese companies. The STA variable shows that when the higher the Short-term loan coefficient, the lower the company's value, measured by ROA.

Table V: Regression results

Y = ROA	Coef. (β)	Cluster robust Standard Error	t	p-value
GE	-0.335***	0.1243	-2.69	0.007
Size	0.024***	0.007	-3.35	0.001
SOL	0.034	0.054	0.63	0.528
PaísE	0.022**	0.021	1.09	0.045
LTA	-0.206***	0.069	-2.98	0.003
STA	-0.037**	0.051	0.71	0.035
Constant	0.873***	0.173	5.05	0.000
R-Squared:	0.56911			
Adj. R-Squared:	0.58922			

Note: *, **, *** represent significance at the 10%, 5% and 1% level.

Source: Own elaboration based on R Studio

5. Discussion

The negative relationship between debt (variables LTA, STA and GE) and company value (measured by ROE and ROA) is in line with the Pecking Order theory. These findings are also in line with the studies of Prenaj et al. (2023), Gralewski & Białek-Jaworska (2022), Vu Thi & Phung (2021) and Dang et al. (2019), although referring to applications in different business and geographic contexts.

The variables results corroborate the idea that the higher the ratio (GE, STA and LTA), the lower the need for internal funds, inducing lower asset profitability, measured by ROA and ROE. It is known that debt implies tax benefits (tax savings - marginal tax rate) and this tax saving will translate into a lower net result. Hence the lower profitability.

Several studies have been developed on this topic. However, few relate the European context. Therefore, it is difficult to compare this study with the works of (Tripathi et al, 2024); (Bui et al., 2023); (Nguyen et al., 2023); (Jin & Xu, 2022); (Natsir & Yusbardini, 2020); among others. The financial realities of various countries, particularly Asian one, are quite different. Asian is the continent with the highest economic grow in the world. The rules of companies listed on the Asian stock exchange are very different from the European ones.

This study represents an important contribution to the European literature. This work is innovative in terms of the sample and the set of exploratory variables used, as well as the model applied. This model had not previously been used to analyse the effect of capital structure on firm value, especially regarding listed companies in PSI 20 and IBEX 35.

6. Conclusion

This study intended to contribute to future research in the area. The subject is very interesting but complex because companies with different capital structure presents different firm value. The firm value can be measured by profitability, performance, efficiency, among others. In this work, the firm value was measured with the Return on Assets (ROA) and with the Return on Equity (ROE) and intended to analyse the effect of capital structure on firm value. Therefore, the aim was to verify whether there was a positive relationship between the capital structure and the firm value of the companies listed on PSI 20 and IBEX 35. This allowed to carry out a comparative analysis between 14 Portuguese companies and 15 Spanish companies listed in the indexes.

In this study it was possible to verify that the variables related to the companies' capital structure are more statistically significant in ROA than in ROE. The variables used to analyse the capital structure were Debt Degree (GE), Long-term loan coefficient (LTA) and Short-term loan coefficient (STA). In general, if debt capital in relation to total investment increases, the value of companies decreases. This decrease is more significant in ROA than in ROE. The higher the company's dependence on creditors, the lower the company's firm value. This conclusion is in line with the pecking order theory. The DUMMY variable (PaísE) shows that Spanish companies have a higher firm value than Portuguese companies (regardless of whether it is considered the ROA or ROE to measure this value).

The variables result corroborate the idea that the higher the ratio (GE, STA and LTA), the lower the need for internal funds, inducing lower asset profitability, measured by ROA and ROE. It is recognized that debt implies tax benefits (tax savings - marginal tax rate). This tax saving will translate into a lower net result. Therefore, the lower profitability measured by ROA and ROE.

References

- Andersson, A. & Minnema, J. (2018). *The relationship between leverage and profitability: A quantitative study of consulting firms in Sweden*. Umea School of Business, Economics and Statistics. Umea University.
- Ayuba, H., Bambale, A., Ibrahim, M. & Sulaiman, S. (2019). Effects of Financial Performance, Capital Structure and Firm Size on Firms' Value of Insurance Companies in Nigeria. *Journal of Finance, Accounting and Management* 10, 57–74.
- Bui, T., Nguyen, X. & Pham, K. (2023). The Effect of Capital Structure on Firm Value: A Study of Companies Listed on the Vietnamese Stock Market. *International Journal of Financial Studies* 11(3), 100.

- Cristóvão, A. (2019). *Determinantes de uma estrutura de capital numa PME: O caso dos quatro maiores clusters da economia portuguesa*. Dissertação de Mestrado. Instituto Superior de Gestão.
- Dang, H., Vu, V., Ngo, X. & Hoang, H. (2019). Study the Impact of Growth, Firm Size, Capital Structure, and Profitability on Enterprise Value: Evidence of Enterprises in Vietnam. *Journal of Corporate Accounting and Finance* 30, 144–60.
- Dawar, V. (2014). Agency theory, capital structure and firm performance: Some Indian evidence. *Managerial Finance* 40 (12), 1190–1206.
- Durand, D. (1952). Cost of Debt and Equity funds for Business Trends and Problems of Measurement. *Conference on Research in Business Finance*, National Bureau of Economic Research, Inc., Cambridge, 215-262.
- Ebaid, I. (2009). The impact of capital-structure choice on firm performance: Empirical evidence from Egypt. *Journal of Risk Finance* 10(5), 477-487.
- Gralewska, M. & Białek-Jaworska, A. (2022). Information Asymmetry, Capital Structure and Equity Value of Firms Listed on the WSE. *Journal of Banking and Financial Economics* 1(17), 17–55.
- Hirdinis, M. (2019). Capital structure and firm size on firm value moderated by profitability. *International Journal of Economics and Business Administration* VII (1), 174–191.
- Jensen, M. & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3(4), 305–360.
- Jin, G. & Xu, J. (2022). Does Intellectual Capital Affect Financial Leverage of Chinese Agricultural Companies? Exploring the Role of Firm Profitability. *Sustainability* 14(5), 2682.
- Jiraporn, P. & Liu, Y. (2008). Capital structure, Staggered Boards, and firm value. *Financial Analysts Journal* 64(1), 49–60.
- Lima, R., Lima, T. & Neves Júnior, I. (2012). Valor da empresa e sua relação com a estrutura de capital, rentabilidade: um estudo empírico das 1000 empresas melhores listadas na Revista Exame. *Revista de Gestão, Finanças e Contabilidade* 2(2), 2-18.
- Loncan, T. & Caldeira, J. (2014). Capital Structure, Cash Holdings and Firm Value: a Study of Brazilian Listed Firms. *Revista de Contabilidade e Finanças–USP* 25(64), 46-59.
- Myers, S. & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13(2) 187–221.
- Modigliani, F. & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review* 48(3), 261–297.
- Natsir, K. & Yusbardini, Y. (2020). The effect of capital structure and firm size on firm value through profitability as intervening variable. 8th International Conference of Entrepreneurship and Business Management Untar (ICEBM 2019), *Advances in Economics, Business and Management Research* 145, 218–224.

- Nguyen, S., Pham, C., Truong, T., Phi, T., Le, L. & Vu, T. (2023). Relationship between Capital Structure and Firm Profitability: Evidence from Vietnamese Listed Companies. *International Journal of Financial Studies* 11(1), 1-13.
- Oliveira, M. (2015). *Relação entre a Estrutura de Capital e o seu impacto sobre a Performance das empresas do mercado EURONEXT100*. Dissertação de Mestrado. Universidade da Beira Interior.
- Prenaj, V., Miftari, I. & Krasniqi, B. (2023). Determinants of the Capital Structure of Non-Listed Companies in Kosovo. *Economic Studies (Ikonomicheski Izsledvania)* 32(1), 36-50.
- Ramli, N., Latan, H. & Solovida, G. (2019). Determinants of capital structure and firm financial performance—APLS-SEM approach: Evidence from Malaysia and Indonesia. *The Quarterly Review of Economics and Finance* 71(C), 148–160.
- Seetanah, B., Seetah, K., Appadu, K. & Padachi, K. (2014). Capital structure and firm performance: Evidence from an emerging economy. *The Business and Management Review* 4(4), 185–196.
- Silva, S. (2012). *Estrutura de Capital: Teste às Teorias do Trade-off versus Pecking Order*. Dissertação de Mestrado. Universidade do Minho.
- Syofyan, R., Putra, D. & Aprayuda, R. (2020). Influence of Company Value Information, Dividend Policy, and Capital Structure on Stock Price. *SAR (Soedirman Accounting Review): Journal of Accounting And Business* 5(2), 152-169.
- Tran, T. (2019). The impact of capital structure on firm value of Vietnamese listed companies - a quantile regression approach. *Journal of International Economics and Management* 124, 89-100.
- Tripathi, V., Goodell, J., Madhavan, V. & Kumar, S. (2024). Moderating effect of capital structure on the relationship between corporate governance mechanisms and firm value: Evidence from India. *International Review of Economics & Finance* 92(4), 1336-1350.
- Vu Thi, A.-H. & Phung, T.-D. (2021). Capital Structure, Working Capital, and Governance Quality Affect the Financial Performance of Small and Medium Enterprises in Taiwan. *Journal of Risk and Financial Management* 14(8), 381.

The influence of choice factors on student decision-making of Vocational Education in Portugal

Tiago André da Silva Couto. ISCAP, Polytechnic of Porto, mar@iscap.ipp.pt, Portugal.
tiago.andre.silva2@gmail.com

Maria Antónia Gonçalves Rodrigues. CEOS.PP, ISCAP, Polytechnic of Porto, Portugal mar@iscap.ipp.pt

Abstract

Purpose: Vocational Education Institutions (VEI) develop in a highly competitive environment where it is imperative to attract new students and understand their decision-making process to reach success. The present study's objective is to analyse the influence of choice factors in their decision for Vocational Education (VE), since such knowledge is crucial for both VE institutions and the relevant authorities when defining their strategy to attract new students.

Methodology: The data was collected through a questionnaire, based on a quantitative methodology, where we analysed 24 choice factors and a total sample of 848 responses was obtained from students that attend VE in Portugal according to district criteria.

Results: The results show that the 24 choice factors analysed affect the students in their decision-making for the VE, highlighting the most important ones as the "Job perspectives after completing the course", "Personal interest" and "Internship opportunities during the course" and the less important as "Level of difficulty of the course" and "School ranking".

Research limitations: One of the limitations of this study was the poor literature and the lack of studies on this type of education (Vocational Education – Professional Courses) and about the decision-making process of these students. Other constraints include the various obstacles faced by the Vocational Education Institutions when collecting data and the low motivation of the study population (generation Z) to fill in questionnaires.

Originality: This investigation makes an important contribution to the theory and management of Vocational Education Institutions. In theoretical terms, a joint analysis model was developed and the specific context of the VEI was studied. For VEI management, it enabled to understand the most influential choice factors during the student's decision-making for Vocational Education in Portugal. This knowledge is

crucial to attract new students in the competitive perspective of Vocational Education Institution and the tutelage, which has goals to achieve

Keywords: *Choice factors; Vocational Education; Portugal; Generation Z*

Acknowledgement: This work is financed by Portuguese national funds through FCT – Fundacao para a Ciencia e Tecnologia, under the project IDB/05422/2020.

The Value Co-creation in HEI Organizational Management

Carla Fonseca. *Portalegre Polytechnic University; CIEQV – Centro de Investigação em Qualidade de Vida. Portugal. carlafonseca@ipportalegre.pt*

Abstract

Purpose: The management of Higher Education Institutions (HEIs) must equip themselves with tools to achieve better results in an increasingly competitive market and find solutions to reach and retain students. Value co-creation is increasingly present in various studies and in a wide variety of contexts and is a fundamental tool for acquiring greater quality in the provision of services such as teaching.

The main objective of this research is to analyze the process of value co-creation in Polytechnic Higher Education Institutions in the interior of Portugal, in order to see how management is or is not being developed in this direction, and to look for solutions focused on value co-creation that benefit the players in this ecosystem.

Methodology: The empirical study adopted the case study methodology, allowing for the analysis of a specific situation, defined in space and time, and chosen at the convenience of the researcher. We chose to apply structured questionnaires to students and teachers in the 1st cycle of higher education at the Polytechnic Institutes of Bragança, Guarda, Castelo Branco, Portalegre and Beja, in the 2019/20 academic year, obtaining a sample of 286 students and 85 teachers.

Results: The results allow us to characterize students and teachers in terms of satisfaction, motivation, collaborative behaviour, and co-creative thinking. The data shows how they seek to contribute to their institution, although not always consciously from the point of view of the concept of co-creation.

Originality: The research is considered to have contributed to a better understanding of the importance and influence of value co-creation as an integral process in the management of HEIs, which benefits from considering the good practices identified as a lever for development in the provision and commercialization of educational services.

Keywords: *Value co-creation; school organizational management; polytechnic higher education; HEIs.*

1. Introduction

Value co-creation is increasingly present in various research studies and in a wide variety of contexts and is a fundamental tool for acquiring greater quality in the provision of services such as teaching. Higher Education Institutions (HEIs), which are in a constant process of change, need to keep up with the contexts in which they operate and find solutions to reach and retain students.

Factors such as globalization and technological evolution have made students more demanding, informed and aware (Vega-Vazquez, 2013), making it necessary to find a faster and more effective response so that they don't become representatives of an outdated offer.

This study aimed to understand and analyze the relevance of value co-creation in this environment and how this concept can be a fundamental tool for better institutional management, particularly in the case of Portuguese Polytechnic Higher Education, seeking to help institutions in the interior of Portugal adopt a more profitable stance and provide greater satisfaction to their students.

2. Literature Review

The use of services is present daily in the most varied routines, forcing organizations to try to ensure that this provision meets the needs and expectations of consumers as much as possible. Vargo and Lusch (2017) believe that service is nothing more than the use of human resources for the benefit of those involved in the process.

The relationship between the concept of value and service is fundamental to the respective attribution of service value, where the focus of value production then

becomes centered on the delivery of the service provided by the product (Vargo and Lusch, 2008). It is based on the value transmitted and interpreted by the customer that the organization can stand out from its competitors, surpassing them and providing the customer with greater satisfaction in their search for needs.

Prahalad and Ramaswamy (2004) defend the origin of the value co-creation process in the consumer's need to interact, thus making the co-creation process an engine for creating performance through consumer participation, translating into satisfaction for both parties.

According to Vargo and Lusch (2008), the customer is always a co-creator of value and always plays a fundamental role in determining value, since the co-creation of value is not based on a unilateral process.

Education is clearly a provision of services, where knowledge, attitudes and behaviours are transferred, with the aim of providing the student with the acquisition of new skills (Alves, 1995). The purpose of the education service is to generate value for its students, who are nothing more than customers that enable the economic capacity of the educational institution, so this service can be understood as something where both parties benefit (Cobra and Braga, 2004), with education being one of the main factors for economic development, thus boosting regions.

From the point of view of Higher Education Institutions, there is a greater relationship with concepts of co-creation (Díaz-Méndez and Gummesson, 2012), a situation that leads to the need to understand how this process takes place within this context, and it is important to investigate a more closed panorama and target existing problems that can be mitigated in the co-creation of value.

As part of their organizational process, HEIs are obliged to manage student satisfaction, and it is essential to offer a service that meets their expectations and adapts to their demands as well as changing times. It is necessary to understand which issues students attribute value to and how they can co-create it, since the value perceived by students will be determined by comparing what they have obtained with what they have been offered (Yang and Peterson, 2004). It is the satisfaction achieved by the students that enables a positive performance evaluation about the teaching provided by the lecturers, which is also reflected in a positive image of the HEI.

2. Methodology

The study adopted a case study methodology. The non-probabilistic convenience sample consisted of 286 students attending the 1st cycle of higher education at the Polytechnic Institutes of Bragança, Guarda, Castelo Branco, Portalegre and Beja in the 2019/20 academic year. The sample also included 85 teachers from the same polytechnic higher education institutions. Polytechnic Higher Education Institutions (HEIs) located in the interior of Portugal were analyzed due to their greater difficulty in attracting students.

A data collection methodology was adopted by applying a questionnaire with open and closed questions. The data collection tool was developed using the Google platform, allowing it to be applied remotely, endeavoring to be brief and simple. As this is a quantitative analysis, different data analysis techniques were used to verify and understand the relationships between the variables, seeking answers to the research questions and the hypotheses formulated.

3. Results

The results obtained in the study corroborate the literature review previously consulted, allowing for the construction of a value co-creation model that works on collaborative behaviour, experience in service delivery and learning, to acquire a competitive advantage for HEIs that are often faced with the problem of their location.

When it comes to value co-creation, the students are not very homogeneous, and the answers are equally divided between the statement that they have already taken part in value co-creation actions (42,3%) and the opposite statement (57,7%). When asked which value co-creation actions they had taken part in, the students were rather confused and imprecise in their answers, leading to the conclusion that they had a weak or almost non-existent understanding of the concept, and it was possible to consider only a few answers, such as solidarity actions; mentoring programs; various events; research studies or activities for regional development.

There was a great deal of irregularity in the students' attitude and knowledge of value co-creation, revealing a need for clarification of the paradigm. However, students, regardless of whether or not they are aware of the paradigm, take a facilitating stance towards it.

As for the teachers, they gave various definitions for their perception of the concept, but in general and in the majority, they all focused on 'a partnership that allows the evolution, valorisation and satisfaction of the parties involved'. There are also some answers that focus on 'creating competences in the student', 'creating and/or disseminating knowledge, creating value for the region where the HEI is located'.

The data collected shows that 65,9% of lecturers say they have already integrated value co-creation actions with students, through research projects; participation/development of events; varied activities for the community; dissemination and/or design of courses; pedagogical improvements; student involvement in learning and research and guidance of final course projects.

In agreement with Payne, Storbaka and Frow (2008), involving students in their own learning process promotes a more enriching and consequently more satisfying service delivery experience, resulting in collaborative behaviour in future activities and triggering the co-creation of value.

In general, the data collected shows that students and teachers try to contribute to their institution, although not always consciously from the point of view of the concept of co-creation. This goes some way to demonstrating their satisfaction, which is always above the center of the evaluation scale for both students and teachers in all the parameters analyzed.

4. Discussion

The study went on to identify key pillars that can be considered relevant to developing a management strategy focused on the co-creation of value, where the literature had already found references to these elements as success enhancers for institutions.

This is the case with the consumer experience, which promotes the projection of the institution through 'word of mouth' (Voss, Gruber & Szmigin, 2007; Qian, 2006), as well as collaborative learning (Athanasidou, 2007) which can become a stimulating process for students and teachers in favour of better results and consequently collaborative behaviour, focused on the experience and

relationships between the actors involved (Prahalad & Ramaswamy, 2000; Vargo and Lusch, 2004). It is considered that these three pillars should be worked on together, in line with the co-creation of value through an exchange perspective, i.e. through the collaboration of the various actors who integrate resources into the process.

In this way, and according to the results found, HEIs should adopt a marketing strategy promoting the co-creation of value, directing efforts to provide students and teachers with a good experience in the delivery of the service, which promotes collaborative behaviour and consequently successful student learning. In this way, it will be possible to achieve the satisfaction of both students and teachers, generating a good performance for the institution, as well as for the actors that make it up, allowing for the much-needed competitive advantage to overcome competitive and regional challenges in attracting students.

5. Conclusion

The main purpose of the study was to analyze the process of value co-creation in the educational context, at the level of polytechnic higher education in Portugal, particularly in the interior of the country, due to the greater difficulty these institutions have in attracting students, largely because of the limitations of the region in which they are located, in order to find a management model focused on value co-creation, which would allow these institutions a competitive advantage that would then stand up to national competition, which is often difficult to compete with, given the limitations of the region in which they are located.

Since higher education has been adapting to market needs, it is essential to analyse how value co-creation, if used efficiently, can become a beneficial tool for institutional management. Given that whenever the customer is involved in a

purchasing process, they are considered to be co-creators of value (Vargo and Lusch, 2004; 2008; 2017), and given the presence of various actors in this environment, such as students, teachers, employees and even the institution itself and the environment in which it operates, it is certain that the conditions are in place for everyone to collaborate and mutually share, through the application of value co-creation, to provide better results for the actors involved.

The research question of this investigation centered on understanding how value co-creation can favour better management by HEIs located in the interior of Portugal, thus achieving competitive advantage in the market. As this is a highly competitive sector, competition between the various HEIs is notorious, leading to the need to differentiate themselves from their main competitors (Judson et al., 2008).

Thus, the variables suggested by the management model presented in the previous chapter, which define the three key pillars for better results, are identified as follows (*Table I*):

Table I: Variables that make up the management model

Collaborative behaviour	✓ Contribution
	✓ Promotion
	✓ Communication
Expertise in service delivery	✓ Integration
	✓ Involvement
	✓ Partnership
Learning	✓ Attention
	✓ Enrichment
	✓ Sharing

Own Elaboration

In view of these findings, it is necessary for HEIs to reflect and create strategies to overcome certain obstacles, so that institutional management can be developed more successfully.

To sum up, considering the data collected and analyzed in this study and all the literature previously reviewed, it is clear how simple it will be for HEIs to integrate students and teachers into the value creation process, making them co-creators. To do this, it is only necessary for HEIs to focus on an oriented management model, not acting in the market as they see fit, but in a structured and coordinated way with these actors, so that everyone can benefit.

We therefore suggest structured planning that integrates the necessary actions to be developed according to the indicators already suggested, which will thus make it possible to feed the three dimensions necessary for the best development of the HEIs, and it is also necessary to constantly monitor this process by assessing the evolution and needs of the publics in question.

References

- Alves, G. (1995). Marketing de Serviços de Educação. *Revista Portuguesa de Marketing*, No. 1, 55-65.
- Athanasίου, E. (2007). *Educational outcomes and equality of opportunity*. Unpublished.
- Cobra, M. & Braga, R. (2004). *Marketing educacional: ferramentas de gestão para instituições de ensino*. Cobra Editora e Marketing.
- Díaz-Méndez, M. & Gummesson, E. (2012). Value Co-Creation and University Teaching Quality: Consequences for the European Higher Education Area (EHEA). *Journal of Service Management*, Vol. 23 No. 4, pp. 571-592. <https://doi.org/10.1108/09564231211260422>.
- Judson, K. M., Aurand, T. W., Gorchels, L., & Gordon, G. L. (2008). Building a University Brand from Within: University Administrators' Perspectives of Internal Branding. *Services Marketing Quarterly*, 30(1), 54-68. <https://doi.org/10.1080/15332960802467722>.

- Payne, A. F., Storbacka, K., Frow, P., & Knox, S. (2009). Co-Creating Brands: Diagnosing and Designing the Relationship Experience. *Journal of Business Research*, Vol. 62, No.3, 379-389. <https://doi.org/10.1016/j.jbusres.2008.05.013>.
- Prahalad, K. & Ramaswamy V. (2000). Co-opting Customer Competence. *Harvard Business Review* No. 78(1): 79-87.
- Prahalad, C. & Ramaswamy, V. (2004b). *The Future of Competition: Co-Creating Unique Value with Customers*. Harvard Business School.
- Qian, B. (2006). *Expectation, Service Quality, and Satisfaction in Higher Education: School o Management Strategic Marketing Group*. [MSc Theses, School of Management: Master of Science]. Cranfield University.
- Vargo, S. L. & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, v. 68, 1-17. <https://doi.org/10.1509/jmkg.68.1.1.2403>.
- Vargo, S.L., Maglio, P. P. & Akaka, M. A. (2008). On Value and Value Co-Creation: A Service Systems and Service Logic Perspective. *European Management Journal*, Vol. 26, No.1, 145-152. <https://doi.org/10.1016/j.emj.2008.04.003>.
- Vargo, S. L., & Lusch, R. F. (2017). Service-dominant logic 2025. *International Journal of Research in Marketing*, 34(1), 46–67. <https://doi.org/10.1016/j.ijresmar.2016.11.001>.
- Vega-Vazquez, M. (2013). The value co-creation process as a determinant of customer satisfaction. *Management Decision*, 51(10), 1945–1953. <https://doi.org/10.1108/MD-04-2013-0227>.
- Voss, R., Gruber, T. & Szmigin, I. (2007). Service Quality in Higher Education: The Role of Student Expectations. *Journal of Business Research*, 60, 949-959. <https://doi.org/10.1016/j.jbusres.2007.01.020>.
- Yang, Z. & Peterson, R. T. (2004). Customer perceived value, satisfaction, and loyalty: The role of switching costs. *Psychology & Marketing*, 21(10), 799-822. <https://doi.org/10.1002/mar.20030>

Session – “Innovative Approaches in Management and Economic Development”

Chair: Elvira Vieira e Ana Pinto Borges

Integration of AI in Supply Chain Management: A Case Study of Amazon's Innovative Approach

Saadia Benahmed. Relizane University, Algeria. saadia.benahmed@univ-relizane.dz

Miloud Benkhira. Mostaganem University, Algeria. benkhiramiloud48@gmail.com

Aboubakr Hansal. Relizane University, Algeria. aboubakr.hansal@univ-relizane.dz

Abstract

Purpose: The objective of this study is to demonstrate the advantages of integrating artificial intelligence (AI) into the supply chain in organisations. This research provides an overview of the concept of AI, supply chain management, with a particular focus on how AI can be applied to enhance supply chain operations. It identifies several value creation areas for AI in the supply chain, showcasing the experience of Amazon, highlighting the results achieved and lessons learned from this case.

Methodology: The study was conducted using two different approaches. The first was a descriptive approach, which involved a narrative review of the literature in the field of artificial intelligence and supply chain. The second was a case study approach, in which Amazon was selected to illustrate how artificial intelligence enhances the value chain in the company.

Results: The results of this study indicate that an AI-based supply chain can make decisions based on self-learning. This is achieved by implementing the technology in four specific attributes within the supply chain: optimization, forecasting, modelling and simulation, and decision support. Additionally, the technology can facilitate the enhancement of safety and quality within the supply chain. Applications of artificial intelligence in the supply chain include: demand forecasting, route optimization, inventory management, supplier selection, risk mitigation, and improving customer service. Furthermore, AI will facilitate the digital transformation of the supply chain by enhancing its ability to predict and optimise operations, thus moving from the traditional

supply chain to the smart supply chain. Moreover, the case study illustrates how Amazon's focus on creating smarter supply chains allowed them to quickly adapt to market demands and offered operational benefits such as visibility, resilience, speed, and agility.

Originality: The integration of artificial intelligence (AI) into the supply chain framework to enhance organisational performance represents a relatively new and less-explored topic in current research; especially, when we examine a real-life case study such as Amazon Company, which illustrates the company's utilisation of AI to optimise its supply chain.

Keywords: *Artificial Intelligence; Supply Chain; Smart Supply Chain; Amazon Company.*

1. Introduction

The impact of the global pandemic has served to reinforce the significance of efficient and resilient logistics and supply chain management practices. These shocks have brought to light the inherent vulnerabilities of traditional supply chain models and the necessity of reevaluating and enhancing supply chain strategies to mitigate risks and adapt to changing circumstances effectively. As businesses navigate an increasingly interconnected and complex global marketplace, the effective management of supply chains has become a strategic imperative for achieving operational excellence and sustainable growth (Merkert, 2023).

In this context, the integration of Artificial Intelligence (AI) into supply chain management has emerged as a key strategy for modern companies. AI technologies enable companies to optimise their supply chains through various techniques and methods. One of the leading examples of this innovative approach is Amazon, a company that has transformed its supply chain operations through the strategic use of AI.

This research examines Amazon's innovative approach to integrating AI into its supply chain management. How has Amazon used AI to improve the robustness

and efficiency of its supply chain, and what lessons can other companies learn from Amazon's experience?

2. Literature Review

Artificial Intelligence (AI) is currently one of the most popular in the business world. It is one of the digital technologies that has been integrated into industry, contributing to the evolution of industry and leading to the emergence of industry 4 and industry 5, which are expected to become the future of digital industry. (Toorajipour et al., 2021). The term was coined by John McCarthy at the time of the celebrated Turing Test in 1950. Moreover, the concept was afterward conceptualised at the Dartmouth Workshop in 1956 (Helo & Hao, 2022). From that point onwards, the concept knew an accelerated advance, particularly in recent years, due to a number of factors, including: the increase in customer expectations, global intense competition, the fast changing nature of technology, business digital transformation, and the impact of the global pandemic.

The three primary technological forces driving the advancement of AI are the exponential growth in computing power, the exponential growth of data, and the development of sophisticated algorithms (Helo & Hao, 2022).

In addition to the financial and business benefits that AI can bring to organisations through the creation of new competencies and the provision of new automation capabilities, there are several advantages to be gained from the application of AI (Bawa 2023):

First, Artificial intelligence (AI) is capable of analysing a large amount of information in a rapid and precise manner, which enables companies to enhance

their planning capabilities and decision-making processes. by analysing historical data and predicting future outcomes the organization can identify opportunities and anticipates and avoids risks. In addition, Automation of repetitive and time-consuming tasks improves employee efficiency by allowing them to gain expertise in analysing and processing processes. Furthermore, Artificial Intelligence (AI) improves customer interactions. It enables organisations to achieve a high level of interaction with customers, leading to improved customer satisfaction and increased customer loyalty. Moreover, The capacity to implement a diverse range of innovations that align with customer desires and market developments enables businesses to gain and sustain a competitive advantage.

To demonstrate the significance of AI implementation within businesses, and according to a study conducted on a sample of 2,342 IT companies with more than 1,000 employees that adopted AI solutions between 2019 and 2023 (IBM, 2022), the results shown in Figure (1) were found:

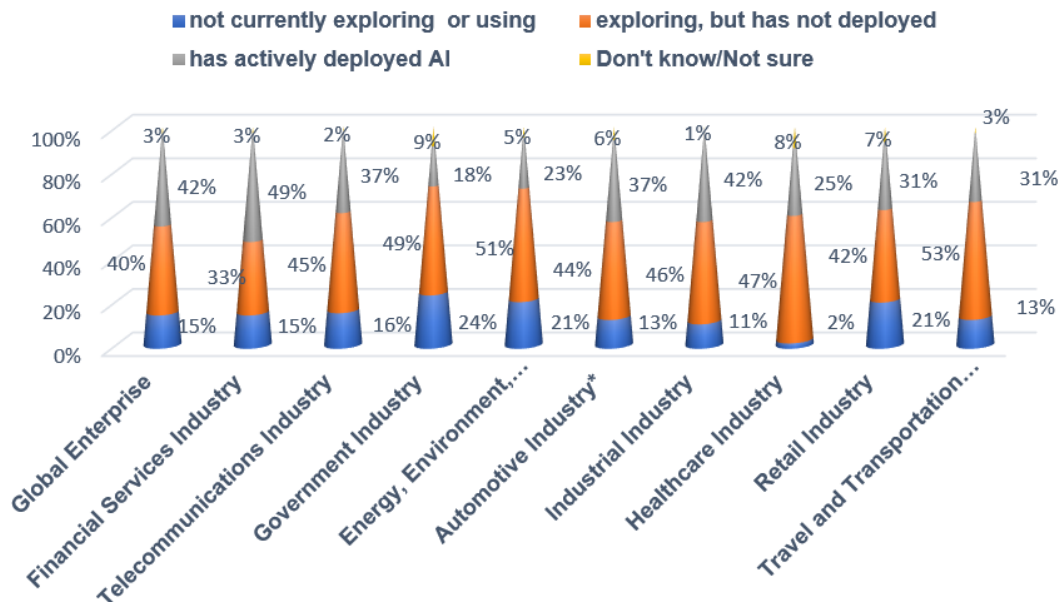
Figure 1. Evolution of AI Usage in Businesses from 2019 to 2023



Source : IBM, 2022.

Figure 1 illustrates that 44% of organisations maintained their AI adoption levels over the 2019-2023 period. Meanwhile, 42% of companies utilising AI and 40% of companies exploring AI as of November 2023. From the pervious study, and in November 2023, the adoption of artificial intelligence of AI in business operations varied across different industries. Here is a breakdown of the percentages based on the adoption status within each industry:

Figure 2. AI Adoption in Various Industries: Exploration and Deployment



Source : IBM, 2022.

The figure is shown that: 15% of Global Enterprise companies, 15% in Financial Services and 16% in Telecommunications, are not using or exploring AI. The Government sector leads at 24%, followed by Energy, Environment, and Utilities at 21%, with Healthcare being the smallest at 2%.

40% of companies are exploring AI but haven't deployed it. The highest exploration rates are in Travel & Transportation (53%) and Energy, Environment, Utilities (51%), followed by Government (49%) and Healthcare (47%), with Financial Services being the lowest at 2%.

42% of companies have deployed AI, with the Financial Services Industry leading at 49% and Industrial Industry at 42%. The Government Industry is at 37%, with

the smallest deployment in the Government sector at 2%. Only 3% of companies are not considering AI implementation.

The supply chain involves a wide range of data used to manage the production, distribution and delivery of goods and services. There are many types of supply chain management, including manufacturing, logistics and customer service (Precedence Research, 2023).

Artificial intelligence (AI) enables machines to perform a range of tasks, including defining and training models, engineering features or variables, tweaking parameters, rebuilding models, and retraining and updating models (Mussomeli, 2023) .

AI can be applied to manage this range of data and can solve problems, provide solutions and improve decision making. One of its applied the predictive analytics that helps organization manage many critical cases such as: inventory levels in companies. Therefore, AI can provide organizations with an accurate insights into the organisation (Precedence Research, 2023).

In addition, AI enables managers to anticipate quality issues, such as those related to product quality, by optimising operations and activities. This allows them to overcome challenges before they impact profitability (Mussomeli, 2023).

Moreover, the application of AI-driven supply chain management can facilitate the reliable making of decisions based on self-learning. This is achieved by implementing four features in the supply chain: optimisation, prediction, modelling and simulation, and decision support (Mussomeli, 2023).

The table below showed some companies that have benefited from the application of AI in the supply chain in different aspects:

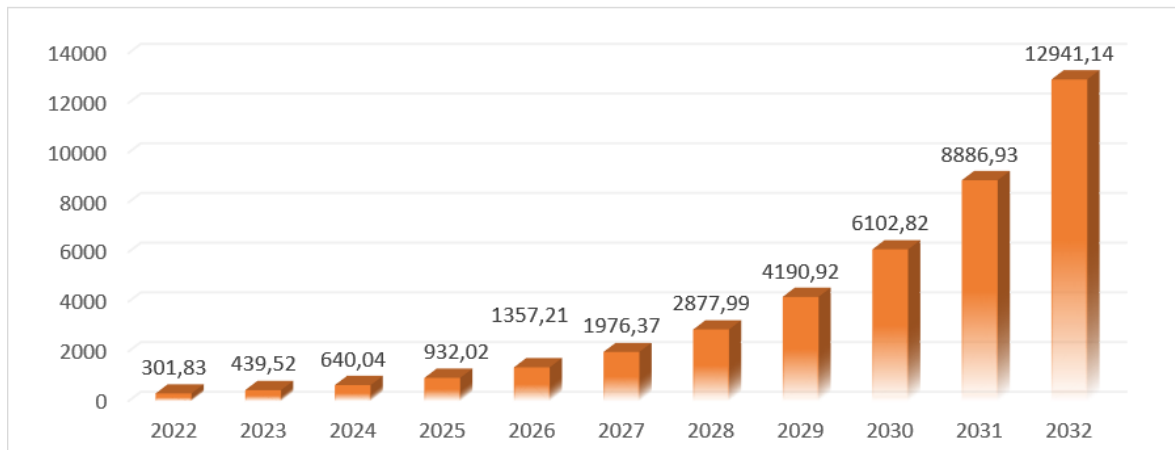
Table I: The benefits of implementing AI in Supply Chain in some industries

the industries organizations benefitting from AI application in Supply chain.	Global transportation leader:	Predictive maintenance by \$110M+ annual benefits across 160+ location
	Global automotive OEM:	Avoidance of \$46M in penalties in investigation of issues
	Global appliances leader:	Benefits across \$97M -\$150M by optimizes manufacturing, logistics services, and inventory
	Food and beverage company:	Benifts from fiding sources and savings across \$75M
	Major airline:	Cost reduction and Performance Management Enabled \$1B inventory reduction opportunity
	Global automotive OEM:	Scenario simulations for inventory \$200M+ cost-saving opportunity
	Aerospace manufacturer:	Tracking resources in real time by planning Enabled \$228M benefits in production and 12% improvement in throughput
	Global medical devices leader:	Inventory reduction Unlocked \$550M+ reduction opportunitie

Source: Mussomeli et al., 2003.

The forecast range from 2023 to 2032 suggests a comprehensive outlook on the Generative AI in Supply Chain Market trends over the next decade (Precedence Research, 2023), shown in the next figure:

Figure 3. Generative AI in Logistics Markets in the next decade from 2023 to 2032 Base Year:2023 USD : million



Source: Precedence Research

The graph illustrates the growth of the global generative artificial intelligence in the supply chain market. The figure indicates a substantial increase from USD 301.83 million in 2022 to approximately USD 12,941.14 million by 2032. This indicates to the robust market demand for generative AI solutions in optimizing and enhancing supply chain operations.

Artificial intelligence (AI) can enhance the value of a supply chain by creating a dynamic supply chain that is capable of adapting to changing conditions. This can be achieved through the use of AI in the following ways: Warehouse automation with AI and the enhancement of order fulfilment are two key areas where AI can be utilised. Furthermore, the application of AI in the field of transportation management can be leveraged to enhance the efficiency of logistics operations. This can be achieved by utilising AI to assess supplier data, as well as implementing precision quality control through AI-based vision systems (Madancian, 2023)

3. Methodology

The study was conducted using two different approaches: a descriptive approach and a case study. The descriptive approach involved a narrative review of the literature in the field of artificial intelligence and supply chain. This was done through a literature review of existing studies using multiple references, starting reading, analysis and preliminary understanding of the changes and trends in the field. Based on this, Amazon was selected as a case study due to its importance and the availability of the information collected. This illustrates how artificial intelligence enhances the value chain in organisations.

4. Results

Amazon has evolved into a global marketplace offering an extensive range of products, with over 480 million products available, and due to its efficient supply chain, Amazon has become a popular choice for consumers worldwide. Amazon's long-term expansion and innovation, including the use of delivery drones, has enabled it to revolutionize traditional business models and reshape the logistics sector (Syracuse University, 2024).

Amazon's supply chain strategy incorporates advanced technology and data analytics. AI is one of the key in optimising processes. Amazon's objective is to create a supply chain that can quickly adapt to market demands. Modern supply chains rely on interconnected global systems (sageseller).

Amazon's Supply Chain services integrate advanced capabilities through various services like Amazon Global Logistics (AGL), Partnered Carrier Program (PCP), Amazon Warehousing and Distribution (AWD), Fulfillment by Amazon (FBA),

Multi-Channel Fulfillment (MCF). This leads to optimized inventory placement and ensures products in a stock, automated replenishment, and cost savings for shipping and storage. and it's enables faster and more reliable shipping, reduces costs through automation, automates inventory replenishment to drive sales, streamlines the entire supply chain, and provides tracking capabilities (amazon).

Figure 4. supply chain at Amazon



Source: Syracuse University, 2024.

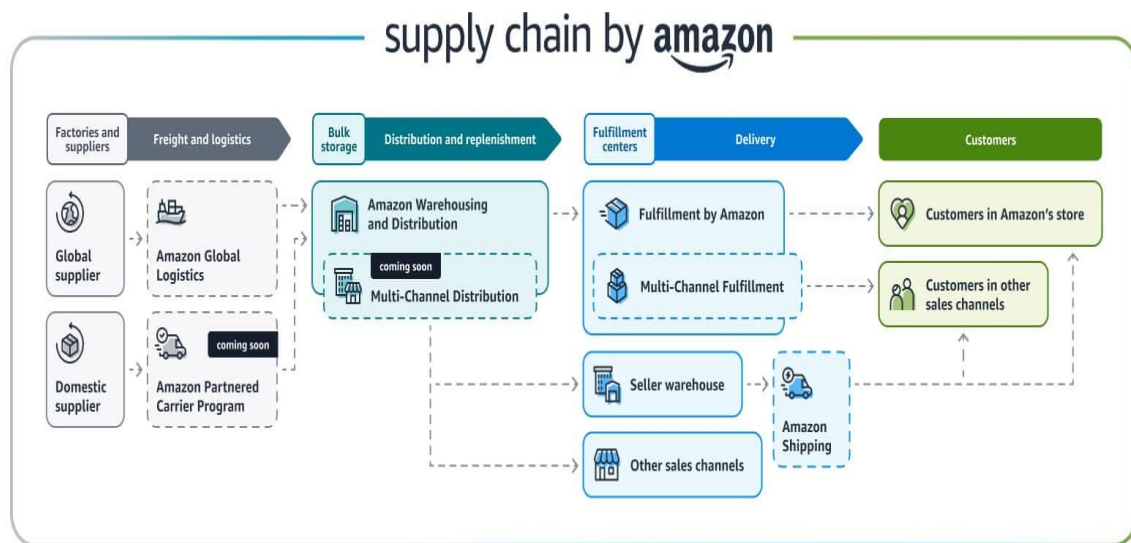
The image shows Amazon's three distinct supply chains and Each supply chain is represented by a four-step diagram showing an order's journey from customer to delivery. For

- Standard Shipping: the item is shipped from a remote distribution center and then delivered to the customer.

- Same Day: the item is shipped from a nearby distribution center and then delivered to the customer by the U.S. Postal Service.

Prime Now: the item is shipped from a store in the city and then sent to the customer using outsourced delivery.

Figure 5. The smart supply chain at Amazon



Source: Amazon, 2024

The figure shows Amazon's supply chain, the first from manufacturing to sourcing materials, moving through logistics, stock, distribution, and replenishment. the logistics help sellers by efficiently managing product delivery, inventory, and order fulfillment. Amazon uses IT to enhance customer experience by tracking browsing history, displaying related products, and gathering feedback.

- the Bulk inventory at AWD automatically replenishes products in Amazon's fulfillment network.

- Fulfillment by Amazon (FBA) manages picking, packing, and delivery for orders on Amazon.
- Multi-Channel Fulfillment simplifies order fulfillment, enabling sellers to focus on other aspects while leveraging Amazon's expertise for product delivery, inventory management, and customer orders.

Amazon's "anticipatory shipping" patent employs predictive algorithms to pack and ship items before purchase confirmation, revolutionizing fast delivery. Post-order processing, Amazon employs various delivery methods based on factors like order specifics, location, and customer preferences. Amazon offers multiple delivery options during order processing, considering factors such as order value, size, weight, and location. Delivery times vary from five to eight business days for regular package deliveries.

5. Discussion

The digital supply chain offers benefits such as visibility, resilience, speed and agility, but requires a sophisticated data strategy to unify fragmented data. Amazon's supply chain leaders understand the importance of a unified data model for AI and analytics to improve visibility, agility, resilience, cost reduction and sustainability (Pantoja-Navajas).

AI in Amazon's warehouses, such as robots in fulfilment centres, improves efficiency by organising and performing specialised tasks. AI also manages large fulfilment and receiving centres, optimising space and order processing. Amazon uses a combination of humans and robots to fulfil orders, ensuring efficient operations and oversight (LECLAIR).

Amazon partners with carriers such as UPS, FedEx and USPS, and operates its fleet to ensure fast and accurate delivery, especially for Prime members. Fulfillment by Amazon (FBA) helps sellers with inventory management and shipping, using AI to re-fill inventory. Robotic technology automates picking and sorting, increasing speed and reducing errors. AI through RFID technology improves inventory tracking and the checkout experience, while algorithms optimise packaging to minimise waste and save time.

6. Conclusion

AI has improved routine tasks across the organisation, reducing errors and allowing focus on important and complex planning and decision making. It has improved the supply chain, making it more efficient and effective; through continuous monitoring of stock levels, order, reorder, gain real-time visibility across the supply chain network. enabling the resolution of bottlenecks, delays and inefficiencies. It also makes it easier for companies to respond quickly to market and supply chain fluctuations.

The The smart supply chain at Amazon:

- Amazon's supply chain strategy incorporates AI.
- Amazon is creating a responsive supply chain that can quickly adapt to market demands
- Amazon smart supply chains rely on interconnected global systems which offers operational benefits such as visibility, resilience, speed, and agility.
- Amazon create a digital supply chain teams aim for self-service data access.

This study examines Amazon's application of AI in its supply chain. However, this limits the generalizability of the findings to other organisations or industries. Furthermore, the study is limited to analysing the available data on the company's page, which may not provide a comprehensive picture of the internal processes and challenges of applying AI to its supply chain.

Firstly, proposing solutions for the high initial cost of integrating artificial intelligence technology for small and medium-sized businesses. Secondly, the reliance on huge amounts of data, which raises concerns about the privacy of data and security. Thirdly, the gap in potential skills, where employees must be trained to work with new AI systems. Finally, the comparative studies between companies of varying degrees from adopting artificial intelligence that will help define best common practices and challenges is an important area for further research.

References:

- Amazon. *Supply Chain by Amazon*. 2024. <https://sell.amazon.com/programs/supply-chain>.
- Bawa, S. S. (2023). How Business can use ERP and AI to become Intelligent Enterprise. *vol*, 8, 8-11.
- Helo, P., & Hao, Y. (2022). Artificial intelligence in operations management and supply chain management: An exploratory case study. *Production Planning & Control*, 33(16), 1573-1590.
- IBM. *IBM Global AI Adoption Index – Enterprise Report*. USA: IBM, 2023.
- Leclair, Denis. *How Does the Amazon Supply Chain Work?*. <https://gotrellis.com/amazon-supply-chain>.
- Madancian, M., Taherdoost, H., Javadi, M., Khan, I. U., Kalantari, A., & Kumar, D. (2023, November). The Impact of Artificial Intelligence on Supply Chain Management in Modern Business. In *The International Conference on Artificial Intelligence and Smart Environment* (pp. 566-573). Cham: Springer Nature Switzerland.
- Merkert, Rico et Kai Hoberg. *Global Logistics and Supply Chain Strategies for the 2020s*. Switzerland: Springer, 2023.
- Mussomeli, Adam , Siddharth Patil and Chris Noyes. UK: Deloitte, 2023.

- Pantoja-Navajas , Diego. (2024). Amazon Supply Chain and Logistics. <https://aws.amazon.com/fr/blogs/supply-chain/unlock-supply-chain-value-with-data-and-ai/>.
- Precedence Research (2023). *Generative AI In Supply Chain Market*. <https://www.precedenceresearch.com/generative-ai-in-supply-chain-market>.
- Sageseller. (2024) *how-amazon-is-changing-supply-chain-management*. <https://sageseller.com/blog/how-amazon-is-changing-supply-chain-management>.
- Syracuse University. (2024). *Amazon Supply Chain Simplified*. <https://onlinegrad.syracuse.edu/blog/amazon-supply-chain-simplified>.
- Toorajipour, R., Sohrabpour, V., Nazarpour, A., Oghazi, P., & Fischl, M. (2021). Artificial intelligence in supply chain management: A systematic literature review. *Journal of Business Research*, 122, 502-517.

Multivariate statistical analysis in ecological business models; an assessment of key factors in green companies in Colombia

Franz Esteban Rodriguez Franky. Compensar University Foundation. Colombia.
ferodriguezf@ucompensar.edu.co

Abstract

This article presents an analysis of the business behavior of small and medium-sized enterprises (SMEs) that consider themselves green in the city of Bogotá, Colombia. The study was carried out during the period 2021-2023 and focused on analysing the organisational actions focused on the sustainability of the business model of these companies. To this end, a multiple correspondence analysis was used, which allowed to evaluate the statistical dispersion between business variables in different functional areas. This analysis was carried out using the R model and following the stages of reading, modelling, and communicating results.

Purpose: This article becomes relevant when analysing the behavior and organizational actions focused on the sustainability of the business models of ecological small and medium-sized enterprises (SMEs) in Bogotá, one of the main cities and economic engines of Colombia. Conducting a statistical assessment of these companies is critical to understanding the drivers of environmentally responsible practices, identifying patterns, challenges, and opportunities. The research contributes to filling a gap by providing an up-to-date, data-driven view of green SMEs in a Latin American urban context. In addition, the use of multiple correspondence analysis (MCA) provides a novel and rigorous approach to assess the dispersion and relationships between multiple business variables in different functional areas. This multivariate statistical analysis, performed using R software and following best practices, guarantees quality and reliability.

Methodology: The methodology used in this study is based on data exploration, which allows to describe the research factors of mixed exploratory and descriptive characteristic, in which the hypothesis is validated through a statistical analysis of multiple correspondences. This multiple correspondence analysis allows the study of cross frequencies or contingency tables to analyse the simultaneity of the study.

Results (mandatory): The results of the study indicate that there is a close relationship between the lifespan of SMEs and the implementation of sustainable business activities in their business model. SMEs with more than 3 years of presence in the market show corporate ecological strength, while those with less than three years of presence show low adherence to sustainability processes and actions. In total, the analysis was carried out in 32 of the 42 companies reported in Bogotá

Research limitations: Some of the main limitations presented during the study focused on access to companies' information, the process of evaluating the sustainability of their processes and the dissemination of the results, since it is sensitive information for young companies that are venturing into a specialized market such as the green market.

Originality: The origin of the study is based on identifying and describing the results found in the assessment or measurement of sustainability in the corporate processes of SMEs, analyzing the associated variables through a multiple correspondence allows identifying actions associated with sustainability

Keywords: *Green business, Carbon market, Bio economy, Circular economy, Green market, Green deal*

Acknowledgements: Special thanks to the Fundación Universitaria Compensar, the Directorate of Research and Transfer and the Business School for the financial and technical support during the study.

1. Introduction

The study seeks to understand the functioning of SMEs, their market and their production system. This allowed them to focus on measuring their sustainability-related actions and present the results from the triple bottom line perspective (environmental, social and economic). At present, rising temperature levels, pollution of water sources, melting glaciers, increasing greenhouse gases, and other anthropogenic factors have generated major environmental alerts for the planet. The latest report presented by the (UN's) Intergovernmental Panel on Climate Change (2019) states that global warming could reach 1.5°C between

2030 and 2052 if pollution and global warming continue to increase at the current rate. The study carried out during the years 2021-2023 focused on analysing the organisational actions focused on the sustainability of the business model of these companies. To this end, a multiple correspondence analysis was used, which allowed to evaluate the statistical dispersion between business variables in different functional areas. This analysis was carried out using the R model and following the stages of reading, modeling, and communicating results. The results of the study indicated that there is a close relationship between the lifespan of SMEs and the implementation of sustainable business activities in their business model. SMEs with more than 3 years of presence in the market show corporate ecological strength, while those with less than three years of presence show low adherence to sustainability processes and actions. In total, the analysis was carried out in 39 of the 42 companies reported in Bogota.

2. Literature Review

The strengthening of production and industrialization processes through energy transformation and the efficient use of natural resources, as well as responsible consumption, are essential to reduce environmental stress on our planet. Therefore, it is essential to analyze and understand the behavior of sustainable business models. According to Pérez et al. (2022), understanding the world and its relationships with the environment is essential today. Research, social projection, innovation and business strategies are key to meeting the Sustainable Development Goals (SDGs). Green businesses have become a line of entrepreneurship that offers goods and services focused on the conservation of natural resources throughout the entire productive life cycle. These so-called green ventures use different commercial, financial, and administrative strategies

to make a big impact among consumers. Some of these strategies include the circular economy, green markets, and the bioeconomy. According to Casillas et al. (2022), "the circular bioeconomy encompasses those bio-based economic activities that, in turn, consistently apply the principles of circularity in their production processes" (p. 614).

Organizations with such characteristics have competitive advantages that have not yet been studied in depth. The business dynamics, the benefits associated with the triple bottom line and the contribution to the decarbonisation of the planet are the main advantages of this type of venture. According to García et al. (2022), business sustainability must be driven by a circular economy that enables commercial interest through different types of entrepreneurship. However, metrics are needed to assess the performance and sustainability of these businesses and processes to improve the production of goods and services (p. 78). As the author points out, there is no doubt that institutional support based on robust public policies is essential to consolidate a circular economy and energy transformation model. According to Antón (2022), the European Union seeks to reduce its greenhouse gas emissions by 50-55% by 2030, for which it has proposed a European emission rights regime for organizations through the European Commission's proposal. This is the origin of the Green Deal, which aims to achieve climate neutrality across the EU (p. 2). Today, sustainability should be seen as more than just a business concept or organizational philosophy, but as working around the needs of any industrial sector. According to German (2023), "companies operate as social actors with an institutional and productive machinery capable of generating impacts on the social fabric, ecosystems, the economic development of communities, and the conditions that determine human dignity and well-being" (p. 180). However, conventional

business models, online production, mass consumption, the use of disposable products and the overexploitation of natural resources are the main economic and political factors preventing green strategies from reaching their maximum application. If we wonder about the origin of the concept of green business. According to Bridget and Wehr (2022) "as companies increasingly focus on corporate sustainability-related initiatives and offer more sustainability-related products, there is a need to continuously assess consumer attitudes towards sustainable consumption" (p. 51). Green businesses must have an economic and financial viability that allows them to make a positive impact among investors and buyers, something that not all companies do. It is important for entrepreneurs to study the business variables that influence success in implementing green businesses, as established in the lifecycle processes of goods and services. The objective of incorporating green practices in business is to achieve decarbonization, species conservation and environmental resilience, bases for structuring the symbiosis of the business model (Lizcano, 2023, p. 137).

The success of a sustainable model is based on the implementation of improvement actions that are integrated into enterprise resource planning (ERP). According to Velázquez (2022), "in general, the aspects considered in the field of sustainable development guide the consolidation of economic, social and environmental well-being, involving strategies that analyse different spaces at the economic, social and environmental levels" (p. 3). However, it is essential that these aspects are integrated into the principles of equity (fundamental characteristics to achieve sustainable development), considering both the intergenerational and intragenerational perspectives (Ivanona & Serrano, 2022, p. 2). The elements in a sustainable practices management process make business leaders understand the need to establish actions that improve the

business model not only in economic and commercial terms, but also in the internal structure of an organization, including human management, technology, and access to knowledge and information. The European Union's international strategy and its "Green Deal" are an example of this and constitute the central axis of the coming years in terms of environmentally responsible consumption and production. According to Anton (2022), "the EU's goal is to reduce emissions by at least 55% by 2030. To achieve this, the European Commission launched proposals to introduce price signals through the amendment of the Emissions Allowance Scheme and the Energy Taxation Directive" (p. 2). When talking about sustainability, it is essential to talk about ecological governance, which represents the interaction between different parameters of a company and society. According to Jacobi and Sinisgalli (2012), "accelerated social, economic, technological, and environmental changes challenge all traditional governance structures. The use of the term [governance] reflects the shift in social and political science from public approaches focused on the concept of government to a broader concept" (p. 1470). Ecological governance also contributes to the advancement of ecological enterprises, which in turn promote a more integrated relationship with the preservation of biodiversity and other ecosystem variables (Muñoz et al., 2022, p.2). Green businesses contribute to the development of entrepreneurship and are a way to promote innovative ideas to transform production and consumption models (Martínez, 2022, p. 3). Today, organizations carry out production processes to maximize resources and increase the production of goods and services. They tend to produce thousands of equal goods in much shorter times. According to Guerrero et al. (2020), "the 17 SDGs indivisibly integrate the three dimensions of sustainable development: social, environmental and economic, with multiple and inseparable relationships between many of them" (p. 406). Transforming production processes is a difficult

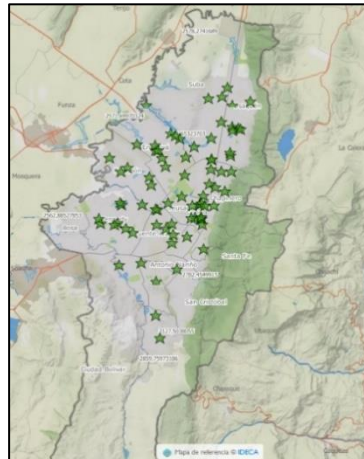
task that involves a high economic impact and a low availability of natural resources. Hernández (2018) points out that "in today's world, the economic system is based on the constant growth of production and consumption. This system has brought development and well-being to many societies. However, it is an unsustainable model as it exceeds the capacity of the Earth" (p. 127).

3. Methodology

The methodology used in this study is based on data exploration, which allows us to describe the research factors and analyse the results. Based on this, a mixed exploratory and descriptive research was carried out, in which the hypothesis was validated through a statistical analysis of multiple correspondences. This analysis made it possible to assess the degree of sustainable actions carried out by organizations at different times (more than 3 years in the market and less than 3 years in the market). Importantly, the data obtained from this process were useful for conducting business evaluations and administrative improvements as the research progressed. Multiple correspondence analysis allows the study of cross-frequencies or contingency tables that lead to a simultaneity analysis of the study (Leandro & Aquino, 2017, p. 150). Figure 1 shows the distribution of green companies in Bogota-Region that participated in the study. These are legally constituted SMEs belonging to the Colombian green market. Different aspects were assessed using questions identified with the letter P, ranging from P1 to P34 and covering different functional areas. The answers to these questions were classified into qualitative options indicating the time of business activity ("1-3 years of the useful life of the company" and "More than 3 years of the useful life of the company") and the degree of growth ("Has grown between 0 and 35%", "Has grown between 36 and

70%", "It's grown by 70 to 100%," "It's grown," and "No action has been taken.") or decrease ("Has decreased.") with the same percentage values. The responses were identified with the letter E, from E1 to E16.

Figure 1. Distribution of green companies in Bogota-Region.



Source: Bogotá Environmental Observatory (2022)

In the descriptive analysis carried out to identify the correlation of the variables of the instrument, the p-e axes were established, where "p" represents the number of categories established per row and the options "Has grown - Has decreased" are correlated by columns. In total, 50 axes ($p=43 - e=16$) are presented in the instrument, which shows the relationship between the sustainability actions evaluated and the response options given by each organization studied. To carry out the statistical correlation analysis, the computational procedure in R was used, which determined the cross-results between the axes and the relationship between them. The following table shows a descriptive part of the form used in the instrument evaluation process.

Table I: Reference of the evaluation instrument

Functional Areas of the Organization	Sustainable Actions Evaluated	Classification in the valuation (ACM)	It has grown							
			1-3 years from the start of the company				More than 3 years since the company started			
			Ha Crecido -1-3 años de iniciada a la empres a-0-35%	Ha Crecido-1-3 años de la empresa -70-100%	Ha Crecido-1-3 años de la empres a-No desarroll a la acción	Ha Crecido -1-3 años de la empres a-0-35%	Ha Crecido -más de 3 años de la empres a-36-70%	Ha Crecido -más de 3 años de la empres a-70-100%	Ha Crecido- más de 3 años de la empresa -No desarroll a la acción	
			E1	E2	E3	E4	E5	E6	E7	E8
Administrative Area	Enables stakeholder engagement and manages relevant impacts on social and human capital	P1								
	Evaluates socio-economic measures in the organization's processes	P2								
	It develops activities focused on the reuse, recovery, recycling and final disposal of products and services	P3								

Source: Own elaboration

Multiple correspondence analysis is a technique used to analyze data and summarize information into frequency tables, which helps to better identify correlation variables in the nature of the data. Although it is considered a descriptive-exploratory tool, multiple correspondence analysis is used to explain the behavior of sustainability actions applied by organizations and how they relate to the useful life of the business in the market. Equation (1) defines the multiple correlation coefficient, which explains a variable in terms of its relationship to other study variables. This coefficient is determined by:

Equation 1

$$R_{1.23} = \sqrt{\frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}}$$

The multiple correlation coefficient, which can be obtained using R, is in a range of values from 0 to 1. As the value approaches 1, it indicates a greater correlation between the variables, while a distance greater than 1 indicates a less linear correlation. Therefore, the distribution of analysis of the collected data is presented, and the variables of sustainable action are evaluated and the correlation variables studied are described, taking into account the useful life of the company in the market. Tables 2 and 3 illustrate these characteristics of the research.

Table II: Sustainable Actions Evaluated.

Functional Areas of the Organization	Sustainable Actions Evaluated
<i>Administrative Area</i>	Enables stakeholder engagement and manages relevant impacts on social and human capital
	Evaluates socio-economic measures in the organization's processes
	It develops activities focused on the reuse, recovery, recycling and final disposal of the company's products and services
	Executes training programs with suppliers to ensure quality in the production of their inputs
	It implements eco-efficiency measures in the organization's processes, eco-efficiency being understood as the ratio between the added value of what has been produced and the added environmental impact that it has cost to produce it.
	It has adequate structures, policies and practices in place to manage its risks and impacts on the operation
	Promotes socio-ecological actions in the organization
	It measures the ecological footprint in the organization's processes and takes action for it. (Ecological footprint: Sustainability indicator that tries to measure the impact that our way of life has on the environment)

	It has a measurement system that facilitates the monitoring of the performance and maintenance of the organization
<i>Production Area</i>	Supports supplier performance, stability, and ability to grow
	Ensure the engagement, development, and availability of resources appropriately that improve business productivity
	Develop actions that guarantee the supply chain in production and/or service (Service Production)
	It establishes activities in the value chain of production and/or service (production, primary and secondary processing, use and end of useful life), which allows for competitiveness standards
	Track air, water, soil, and noise pollution caused by the company's operations
	Makes use of biomaterials or bioinputs in production or service
	Executes control processes in production traceability with respect to the manufacture of the product or service
<i>Human Capital Area</i>	Run internal programs that promote discussion of mental health issues and share resources for employees to use.
	Enables the availability of skilled labor, access to and use of intellectual property.
	There is employee participation in corporate decision-making.
	Actions are carried out that generate significant impacts on society through the company's social and human capital
<i>Financial & Accounting Area</i>	Develops monitoring of the organization's job creation and dismissal rates
	Develop evaluation processes on the financial cost of running a training program
	It runs monetary valuations that measure several different impacts within the operation so that the company can compare their relative size or aggregate them
	Evaluate the distribution of costs and benefits among different stakeholders
	Performs cost-benefit evaluation processes in different interventions that have been carried out as an organization
	Makes evaluative comparisons of gross profitability or contribution margin
	Use Green Financing Systems - Green Bonds
<i>Area Marketing</i>	Develop economic viability plans for each project they carry out
	Develop strategic alliances that allow you to enter new markets
	Carry out commercial activities in networks with other organizations that generate trust in the customer and/or consumer
	Tracks unintended consequences or spillovers of a business activity that may occur despite not being the primary intent of the activity.
	Develop sales and marketing processes through digital platforms and virtual channels.
	It uses Eco Packaging for the final disposal of its products
	Carry out strategies that allow you to have bargaining power with clients

Source: Authors' own creation

Table 3 shows the variables evaluated by green organizations. It is important to note that this evaluation was carried out in two phases: companies that have been in the market for more than 3 years and those that have been in the market for between 1 and 3 years (a trend exclusive to ecological SMEs in Bogotá-Region). In addition, it should be noted that these organizations have an average of 10 to 85 employees who cover the different operational and productive activities of the businesses.

Table III: Weighting variables for the sustainable actions evaluated.

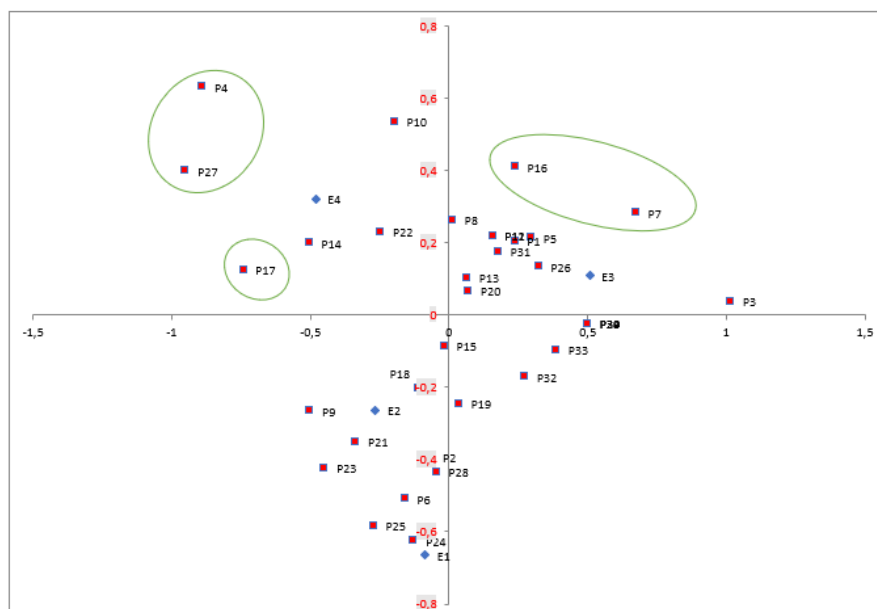
It has grown	1-3 years from the start of the company	He has grown up among 0 - 35%
		He has grown up among 36 - 70%
		He has grown up among 70 - 100%
		Doesn't develop the action
	More than 3 years since the company	He has grown up among 0 - 35%
		He has grown up among 36 - 70%
		He has grown up among 70 - 100%
		Doesn't develop the action
has decreased	1-3 years from the start of the company	It has decreased between 0 - 35%
		It has decreased between 36 - 70%
		It has decreased between 70 - 100%
		Doesn't develop the action
	más de 3 años de iniciada la empresa	It has decreased between 0 - 35%
		It has decreased between 36 - 70%
		It has decreased between 70 - 100%
		Doesn't develop the action

Source: Own elaboration

4. Results

During the evaluation process, it was determined that 90% of companies had to migrate to digital commerce, such as e-commerce, marketplaces and other digital sales and distribution platforms, due to the COVID-19 pandemic. Regarding the correlation analysis of the variables studied, Figure 2 shows a high correlation between sustainability activities P4, P27, P16 and P7 (Implements training programs with suppliers to ensure the quality of the production of their inputs. Use Green Financing Systems - Green Bonds. Executes control processes in the traceability of production with respect to the manufacture of the product or service. Promote socio-ecological actions in the organization.) and companies that have been in the market for between 1 and 3 years. It is important to note that companies do not ensure that their actions are sustainable, even if they identify themselves as eco-friendly. This applies to variables P19, P21 and P23 (There is employee participation in corporate decision-making. Track the organization's job creation and layoff rates. It runs monetary assessments that measure several different impacts within the operation so that the company can compare their relative size or aggregate them.) The correlation of these variables with the answer option "No action taken" was found to be low.

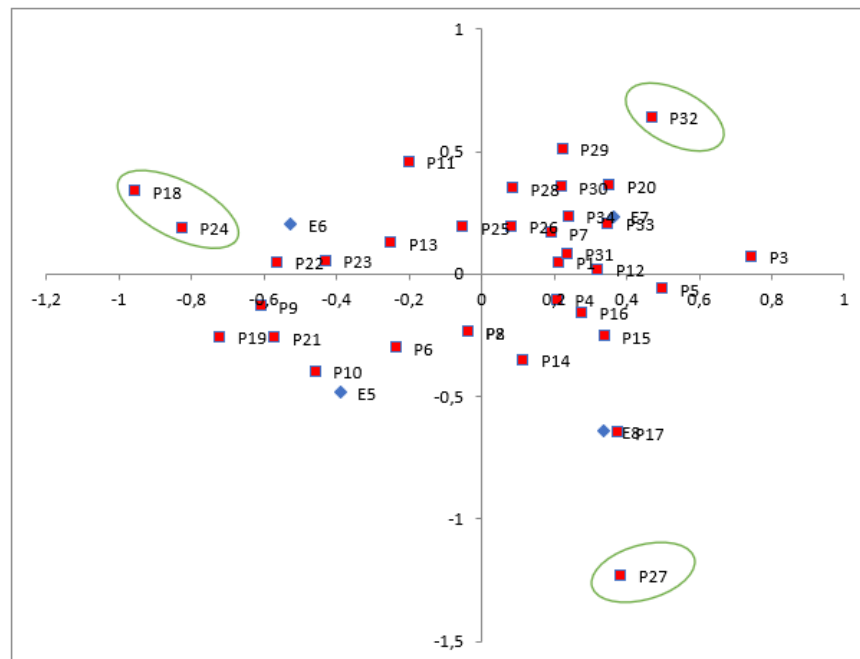
Figure 2. Correlation of sustainable actions to the response has grown from 1-3 years of creation of the company



Source: Own elaboration based on R analysis

The figure also provides insights into the correlation between sustainability actions and the lifetime of companies in the market. A high correlation is observed in several sustainability variables where the growth of the strategy starts between 50% and 70% and a useful life of 1 to 3 years in the market. Some of these variables (Execute actions that generate significant impacts on society through the company's social and human capital. Makes evaluative comparisons of gross profit or contribution margin. It tracks the unintended consequences or spill over effects of a business activity that may occur despite not being the primary intent of the activity. It implements eco-efficiency measures in the organization's processes, understanding eco-efficiency as the relationship between the added value of what has been produced and the added environmental impact that it has cost to produce it.) In addition, a greater relationship was found between sustainability questions and answer options in companies that have been in the market for more than 3 years, suggesting that entrepreneurs have better understood their business model and business dynamics. In particular, a high connection was found between sustainability variables P7, P3, P11, P12, P13, P19, P29 and P32 in this group of companies. However, the correlation between the rest of the sustainability actions and the company's growth is greater. Figure 3 shows that the evaluation variables P18, P24, P32 and P27 have a lower relationship between the answer options.

Figure 3. Correlation to sustainable actions response option has grown more than 3 years since the company was created



Source: Authors' own elaboration based on R analysis

In the analysis of correlations between the evaluation variables and life expectancy in the market, similarity was found between P27, P24 and P32 (Uses green financing systems - Green Bonds. Evaluate the distribution of costs and benefits among different stakeholders. Develop sales and marketing processes through digital platforms and online channels. This feature shows that regardless of the shelf life, there is a correlation. These variables have a similar, albeit low, correlation for both companies that have been in the market for less than 1 year and those that have been in the market for more than 3 years. This indicates that business operations should be linked to business philosophy and management

and leadership style. Regarding the correlation between the variables and the percentage response options (E8 and E7, which refer to 70-100% and "No action is taken"), it was found that activities related to production, finance and the market are the ones with the lowest correlation between them, which implies a potential for work in each area. The sustainability assessment allowed us to identify not only the processes carried out by the green companies, but also to interpret the data found in relation to the development of sustainability actions. According to the evaluation, the highest correlation of responses was found within the percentages of 0-35% and 36-70%.

5. Discussion

Implementing sustainable actions and strategies is essential to reduce the generation of greenhouse gases and contribute to the decarbonization of production, regardless of the type of organization. However, the dissemination of the results and the implementation of business actions based on the sustainability assessment presented in this study is only the first step towards the transformation of manufacturing sector actions. According to Jiménez and Soler (2017), Colombia is a mega-biodiverse country that is home to 10% of the world's biological diversity due to its environmental and ecological characteristics, typical of a territory with different thermal floors (p. 10).

6. Conclusion

This study focused on 69% of the total population of companies in Bogotá-Region categorized as green companies. The importance of social economy companies as examples of commitment and involvement with sustainability is highlighted,

and it is suggested that these environmental aspects be reflected in their financial statements through the implementation of an accounting system (Muñoz & Enciso, 2021, p. 272). These conclusions are in line with the assessment of sustainability in terms of the useful life of green companies in the market. It should be noted that these small and medium-sized companies should be seen as business strategies for the future and fundamental axes to mitigate global warming. In addition, a high correlation between sustainable activities and shelf life was observed in the market of 1 and more than 3 years. A direct relationship was found between administrative and human resource management activities (P1 to P9 and P17 to P21), indicating that these types of companies develop actions to ensure sustainability.

References

- Alonso-Muñoz, S., Torrejón-Ramos, M., Medina-Salgado, M. S., & González-Sánchez, R. (2022). Sustainability as a building block for tourism: research for the future: the 2030 tourism agenda. *Tourism Review*, 78(2), 461-474
- Antón, A. A. (2022). Review of the EU energy taxation framework in the context of the green deal: Towards a transition to a green, efficient, socially just and inclusive economy. *International Visual Culture Review*, 9, 1-13. <https://doi.org/10.37467/revvisual.v9.3670>
- Bogotá Environmental Observatory. (2022). Figures and Indicators of the Environment in Bogota. <https://oab.ambientebogota.gov.co/indicadores/?id=6fcc0340-4786-11ea-a197-b3423b8bc178>
- Caro, J., Daza, R., González, S., Rodríguez, J., Rodríguez J.R., & Pérez, M. (2021). Drinking Water Tariff Policy: Vulnerability, Regulation and Sustainability in the Colombian Case. *Water and Landscape*, 21, 135-149. DOI: <https://10.17561/AT.21.6042>
- Casillas, A.C., Pérez-Camacho, M.N., García-López M., Cátedra-Cerón, M.M., Capote C., Jiménez, I., & Villanueva, A.J. (2023). Circular bioeconomy strategies. A comparative analysis at European level. *ITEA-Información Técnica Económica Agraria*, 118(4): 613-630. <https://doi.org/10.12706/itea.2022.016>
- Chacón, E. (2022). Mypes and sustainability in times of pandemic in Arequipa, Peru, A model of structural equations. *International Visual Culture Review*, 10(4), 1-11. <https://doi.org/10.37467/revvisual.v9.3624>

- Corson, C., MacDonald, K.I., & Neimark, B. (2013). "Green" hoarding: markets, environmental governance and the realisation of natural capital. *Human Geography*, 6(1), 1-15. doi:10.1177/194277861300600101
- Garcia de Leaniz, P., & Castro-González, S. (2023). Consumer behavior on sustainable issues. *Management letters*, 23(1), 7-9. <https://doi.org/10.5295/cdg.221853pm>
- García-Bucio, P., Sotelo-Navarro, P. X., Poggi-Varaldo, H. M., Cañizares-Villanueva, R. O., & Escamilla-Alvarado, C. (2022). Indicadores de la bioeconomía circular para el aprovechamiento de la fracción orgánica de los residuos sólidos urbanos. *Revista Internacional De Contaminación Ambiental*, 38, 78–92. <https://doi.org/10.20937/RICA.54350>
- Guerrero, A., Gómez-Quintero, J.D., & Olleta, J.L. (2020). Climate Crisis and Sustainable Development Goals: An Approach from the Perspective of Livestock Farming, Meat Consumption and Social Effects. *ITEA-Agricultural Economic Technical Information* 116(5): 405-423. <https://doi.org/10.12706/itea.2020.025>
- Hernandez, I. (2018). Sustainable production and consumption and the reduction of food waste as one of its objectives. *P.A. Persona e Amministrazione*, 1, 125 – 147. <https://doi.org/10.14276/2610-9050.1512>
- Hervás, D.S., & Martínez, S. (2022). Sustainable Acts and Events in the Most Responsible Organizations in Spain: Monitoring of ISO 20121 Criteria at the Events of the Leading Companies in the Ranking. *International Humanities Review*, 11, 41-46. <https://doi.org/10.37467/revhuman>
- Ivanova, A., & Serrano, R. (2022). Climate change, human rights, and sustainability. *Revista Mexicana de Economía y Finanzas Nueva Época REMEF*, 17(4), e802. doi:<https://doi.org/10.21919/remef.v17i4>.
- Jacobi, P.R., & Sinisgalli, P.A. (2012). Environmental governance and green economy. *Ciência & Saúde Coletiva*, 17(6), 1469-1478. doi:10.1590/s1413-81232012000600011
- Jiménez, T., Cárdenas, J., & Soler, D. (2017). Biotrade in the South American context: Colombia and Peru as case studies. *Journal of Veterinary Medicine*, 35, 9-15. <http://www.scielo.org.co/pdf/rmv/n35/0122-9354-rmv-35-00009.pdf>
- Krugman, P. (1995). The Fall and Rise of Development Economics. In: KRUGMAN, P. (Org.) *Development, Geography and Economic Theory* (pp1-29). MA: MIT Press.
- Leandro-Merhi, V.A., & Aquino, J.L.B. (2017). Relationship between nutritional status and clinical outcomes of patients with and without neoplasms according to multiple correspondence analyses. *Archives of Gastroenterology*, 54(2), 148–155. doi:10.1590/s0004-2803.201700000-05
- Martínez-Martínez, S. L. (2022). Entrepreneurship as a multidisciplinary phenomenon: culture and individual perceptions in the creation of companies. *Academia Revista Latinoamericana de Administración*, 35(4), 537-565.
- Mendoza-Ramírez, E., Garnica-González, J., & Cruz-Coria, E. (2022). Revisión de los componentes en modelos de negocio en empresas turísticas sostenibles. *International Humanities Review*, 11(6), 1-15.
- Muñoz, M.P., & Enciso, V. (2020). Environmental accounting as a tool for the incorporation of environmental sustainability in social economy enterprises.

- Journal of Public, Social and Cooperative Economics*, 103, 249-277.
DOI:10.7203/CIRIEC-E.103.17838.
- Nichols, B.S., & Holta, J. (2023). A comparison of sustainability attitudes and intentions across generations and gender: a perspective from U.S. consumers. *Management letters*, 51 – 62. <https://doi.org/10.5295/cdg.211647bs>
- Pérez, K., González, A., & Riquelme, M. (2022). Networked Learning Communities: Contributions to Sustainability and Integral Training. *International Journal of the Humanities*, 12(1). <https://doi.org/10.37467/revhuman.v11.3903>
- The Intergovernmental Panel on Climate Change. (2019). Global warming of 1.5°C. https://www.ipcc.ch/site/assets/uploads/sites/2/2019/09/IPCC-Special-Report-1.5-SPM_es.pdf
- United Nations Environment Programme – UNEP. (2011). Annual Report 2011, "Rio 2012" <https://wedocs.unep.org/handle/20.500.11822/8053>
- Vásquez, E., & Molina, C. (2023,). Sustainability in Colombian commercial companies: its enforceability through fiduciary duty. *Revista de Derecho Privado, Universidad Externado de Colombia*, 44, 179-213. DOI: <https://doi.org/10.18601/01234366.44.07>

The Paradoxes of Personalization in Digital Marketing: a Comparative Analysis between Generations

Bárbara Santos. ISAG—European Business School, Porto, Portugal; Research Centre in Business Sciences and Tourism (CICET—FCVC), Porto, Portugal. ba.santos1998@gmail.com

Ana Pinto Borges. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC); IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal. anaborges@isag.pt

Elvira Vieira. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal, Applied Management Research Unit (UNIAG), Instituto Politécnico de Bragança, Bragança, Portugal; IPVC—Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal. elvira.vieira@isag.pt

Paula Rodrigues. Lusíada University – North and Research Centre in Organizations, Markets and Industrial Management (COMEGI), Porto, Portugal. pcristinalopesrodrigues@gmail.com

Abstract

Purpose: Consumer appreciation in the digital era is one of the main factors driving this transformation. Personalization is another important trend in digital marketing. By tailoring messages and offers to consumers' individual needs and interests, companies can increase the relevance of their campaigns and improve results. Considering the dynamics of digital marketing, it is crucial to analyze how strategies relate to different generations of consumers. Each generation, from Baby Boomers to Generation Z, has unique characteristics, behaviors and preferences, influenced by their specific experiences and social contexts. This paper investigates the growing use of ad blockers and private browsers among consumers of various generations, as well as the impact of privacy calculus theory.

Methodology: Through the application of a questionnaire survey, 406 valid responses were obtained. Quantitative analysis employed descriptive statistics, exploratory, and confirmatory factor analysis, revealing a male predominance in the sample, with most belonging to Generation Z.

Results: The analyses revealed that privacy concerns vary by generation, with Generation Y being more concerned, whereas perceived benefits of customization do not differ considerably. There were no significant changes in terms of brand-induced discomfort, non-personalized marketing, or brand prevention. Customer involvement with the brand, however, varied, with Generation Z showing the highest levels.

Originality: This paper seeks to fill gaps in the literature by incorporating the dimension of customer brand engagement into McKee et al. (2023) model, as well as evaluating consumer behaviors towards personalized and non-personalized digital marketing, taking into account two personalization paradoxes: privacy-benefits and avoidance-bother.

Keywords: *Consumer Behavior, Generations, Digital Marketing, Personalization.*

Session – “Competitive Advantage, Sustainability, and Transparency in Business Management”

Chair: Victor Tavares

Bus Fleet Maintenance and Project Management

Márcio António Almeida Lima. CIICESI, ESTG /P. PORTO, Portugal.
8220041@estg.ipp.pt

Sara Martins. CIICESI, ESTG /P. PORTO, Portugal. ssbm@estg.ipp.pt

Abstract

Purpose: Bus fleet maintenance management plays a critical role in the productivity, quality, and ability to generate value for companies providing public passenger transport services. This work aims to create a solid basis for future research on the subject of bus fleet maintenance and project management.

Methodology: This work consists of carrying out a literature review, to explore existing knowledge about bus fleet maintenance and project management.

Results: The expected result is that this contribution increase interest in the production of knowledge regarding project management and maintenance management. Which may result in increased maintenance efficiency due to the increase in available knowledge.

Originality: At the time of this review, no articles are associated with managing bus fleet maintenance projects. This gap persists in research related to project management and land transport. Therefore, this article aims to show how project management can positively influence the bus sector.

Keywords: *bus fleet maintenance; public transport; project management*

1. Introduction

Public passenger transport services play a critical role in the mobility of people and cargo, whether at a regional, national, or international level. Fleet maintenance is a key operational area for transport companies to fulfill their purpose of providing a quality service and making a profit. For this to happen, fleet maintenance must be continually improved until it is carried out with maximum efficiency and effectiveness.

Relevant literature demonstrates benefits in integrating project management with maintenance management (Mtembi & Kanakana, 2015). However, at the time of this review, no articles are associated with managing bus fleet maintenance projects. This gap persists in research related to project management and land transport. Therefore, this article aims to show how project management can positively affect the bus sector, starting with the maintenance of bus fleets and opening doors to studies in other relevant areas, such as fleet renewal projects and the operation of fleets.

The main objective of this research is to combine project management with maintenance management in order to create a solid basis for future research on the subject of bus fleet maintenance project management. Given the lack of literature that combines these two topics, project management and bus fleet maintenance management, the aim of this article is to fill the gap that exists with regard to a study associating management of bus fleet maintenance projects. It is expected that this contribution increase interest in the production of knowledge regarding project management and maintenance management in general, which may result in increased maintenance efficiency due to the increase in available knowledge

2. Literature Review

This chapter explores the topics of bus fleet management, maintenance management, and project management. The set of these concepts results in the framework of the study presented here.

Fleet Management

According to OROŠNJAK, et al. (2020) the concepts related to bus fleet management (BFM) have undergone many changes in recent years, being understood by some as the set of tasks related to the definition of routes and schedules, and by others as maintenance and replacement tasks. However, these definitions are outdated. Nowadays, BFM must be perceived as a complex multifaceted system that guarantees socioeconomic sustainability, and not as a simple set of tasks that ensures punctual service.

BFM is divided into two main fields: bus fleet mobility management (BFMM) and bus fleet asset management (BFAM) (OROŠNJAK et al., 2020). Within the scope of BFM, asset management is defined as a cost-effective systematic process of operating, maintaining, and updating physical assets (Mishra et al., 2010). Therefore, BFM consists of managing a large number of buses with the aim of optimizing fuel economy, availability, operational efficiency, life cycle and minimize pollution (OROŠNJAK et al., 2020). Gonçalves (2021) found that specific fuel consumption and maintenance costs tend to increase as buses age, with maintenance costs/kilometer doubling after the first two years, at 5 and 10 years.

For Vilaça (2017), the quality of fleet management directly impacts the Life Cycle Cost of an urban bus. According to Raposo (2017), the fleet management process has not been understood as a strategic factor. Therefore, most

companies analyze this factor in isolation, not distinguishing the benefits that efficient fleet management can bring to the company's overall performance, such as improved production and punctuality of services. The efficient management of a transport company's fleet is among the main aspects that guarantee a consolidated position in the market.

As Sheng & Prescott (2019) state, for aircraft fleets, fleet maintenance organizations are responsible for keeping customer vehicles, whether internal or external, in safe and efficient operating conditions. Therefore, we can recognize maintenance as a critical element in the life cycle of assets (Dourado & Viana, 2021).

In order to guarantee positive results in the productivity of a company made up of a wide variety of equipment, it is essential to maintain all of them in ideal operating conditions (Trembl, 2020).

Maintenance Management

The need to maintain equipment is presented by Raposo (2017), stating that every equipment or physical asset is subject to a process of deterioration, especially when it is in operation, performing the function for which it was designed. According to Trombeta (2017), maintenance practice arises from the need to preserve something's functioning. The term "maintenance" originates from the Latin "*manus tenere* ", which means keeping what you have. This expression suggests the idea of ensuring an item's entire functioning meets its expectations.

Concerning types of maintenance, the literature presents different nomenclatures to identify the types of maintenance, as industries prepare the maintenance plan according to their specificity. In this article, we will address the types of

maintenance based on the nature of the intervention, highlighting corrective (response to failures), preventive (prevention of failures through a maintenance plan based on time or kilometers), predictive (prevention of failures through monitoring previously established parameters) (Assis, 2010, p. 184). In addition to the types of maintenance mentioned above, there is also proactive maintenance, a more modern type of maintenance, which combines preventive maintenance with predictive maintenance. Like preventive maintenance, proactive maintenance also promises to prevent breakdowns, through its main tasks that fall into three categories: planned renewal, planned decommissioning and determining the condition to monitor (Teplická & Straka, 2020). Proactive maintenance has positive impacts on an economic, technical, environmental and social level (Ambriško & Teplická, 2021). Table 1 summarizes the main benefits of the different types of maintenance.

Table 1: Benefits of types of maintenance – Comparison between Corrective, Preventive, Predictive and Proactive.

Corrective	Preventative	Predictive	Proactive
Repair after failure	Planned maintenance to avoid failures	Predicts and fixes problems early	Proactively identifies and fixes problems
• Reduced initial costs.	• Greater availability • Greater durability • Lower costs	• Greater availability • Monitoring performance and parameters • Prediction of faults • Wear level control	• Greater reliability and availability • High-security level

			• Better production duality • More sustainable for the environment • Greater durability • Greater cost benefit

Source: Own elaboration, based on Ambriško & Teplická , (2021).

The Portuguese standard NP EN 13306:2007 defines maintenance management as all management activities that establish the objectives, strategy, and responsibilities related to maintenance, implementing them through various approaches, such as planning, control, and maintenance supervision, and improving methods in the organization, including economic aspects. In summary, maintenance management involves managing tasks with technical and administrative aspects throughout the life cycle of equipment or installation (Ambriško & Teplická, 2021).

According to Pereira & Sena (2016), maintenance management is based on the following principles:

- Implementation and operation of an information system;
- Inventory and management of technical and human resources;
- Subcontracting to specialized maintenance service providers.

Common Challenges in Bus Fleet Maintenance

The maintenance of bus fleets for public passenger transport is highly demanding. However, public passenger transport organizations need to fulfill their mission. High maintenance costs, lack of spare parts, and low reliability are the main challenges of maintenance management (Ambriško & Teplická, 2021).

- **Reduced maintenance budget**

As mentioned by Deac V., et al. (2010), in many cases, companies often reduce the budget allocated to preventive maintenance due to the scarcity of financial resources and in the search to reduce total costs. Contrary to expectations, this approach generates the opposite effect since the costs associated with corrective maintenance increase due to increased failures. At the same time, maintenance activities grow in both number and cost, resulting in reduced preventive maintenance due to a lack of resources, placing the company in a vicious cycle that is difficult to overcome.

- **Bus reliability**

Urban buses' different maintenance requirements translate into higher costs as the level of preventive maintenance increases (Zhou et al., 2020). A significant challenge in the public passenger transport sector is the reliability of buses. Buses with low reliability negatively impact the punctuality of the network, reduce passenger confidence, increase transport costs, and reduce fleet availability. This results in some vehicles traveling long distances while others are immobilized due to breakdowns (Niewczas et al., 2019).

- **Aging of buses**

Another significant challenge in maintaining bus fleets is the fight against aging vehicles. There is a relationship between the increase in the average age of the

fleet and the increase in fixed assets (Bivona & Montemaggiore, 2010). Ideally, a vehicle that completes its life cycle should be replaced. Still, the lack of financial resources makes transport companies look for other alternatives to extend the life cycle of the vehicles (Mishra et al., 2010).

- **Lack of spare parts**

Due to the lack of spare parts, bus downtime represents one of the most significant direct costs of fleet maintenance (Smidt-Destombes, van der Heijden, & van Harten, 2006). When there are sufficient spare parts, downtime is reduced to the duration of component replacement.

- **Energy transition**

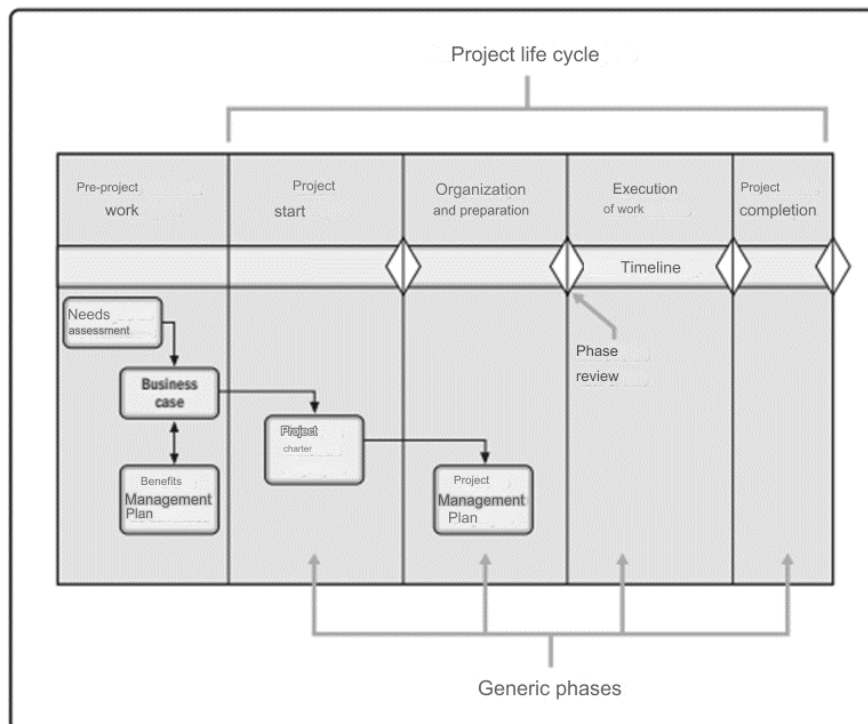
Last but not least, there is the challenge of the electric transition. The innovation that allowed the electrification of buses represents a significant technological advance. However, innovations of this type are challenging and can be disruptive. The transition from diesel to electric propulsion is transformative in scale and complexity, encompassing:

- Technology (e.g., vehicles, infrastructures, energy management systems, etc.);
- Operations (e.g., route design, service plans, maintenance and service delivery);
- Cultural changes (e.g., risk management and risk tolerance);
- Supply Chain (e.g., industry-wide changes to support parts and services) (TTC, 2022).

Maintenance Project Management

According to Kerzner (2003), understanding project management begins with defining the project. According to the author, a project can be characterized as a series of activities or tasks with a specific objective to be achieved within certain specifications. These activities have defined start and end dates, a funding limit (when applicable), and require allocation of human and non-human resources. For PMI (2021), a project is described as a temporary effort aimed at creating a unique product, service, or result. The life cycle of a project comprises a sequence of phases through which the project evolves from its beginning to its completion. Each project phase represents a set of logically interconnected activities, which converge to carry out one or more deliverables (PMI, 2017), as shown in Figure 1.

Figure 1: Generic representation of a project life cycle



Source: PMI (2017).

Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements. Project management is accomplished by appropriately applying and integrating the identified project management processes (PMI, 2017). Effective and efficient project management should be seen as a vital strategic competence for organizations, as it enables organizations to:

- Align project results with business objectives;
- Act more effectively in their markets;
- Maintain organizational sustainability;
- Adapt to the impact of changes in the business environment by appropriately adjusting project management plans (PMI, 2017).

Large-scale maintenance projects are commonly classified as maintenance activities, regardless of their complexity and size. Thus, to date, very limited attention has been devoted to researching the critical skills needed to carry out these projects (Pieterse, 2022).

According to Ben-Daya et al. (2016), a maintenance project is a set of tasks carried out to maintain a facility or asset in efficient operating conditions, preserve the property's condition, or restore it to an adequate state after prolonged use.

Project management in maintenance is commonly applied in the aviation sector due to the significant costs associated with the immobilization of this type of vehicle (Kulkarni et al., 2017).

There is a relationship between maintenance and production, in the sense that if equipment is undergoing maintenance, it is not producing. However, the equipment must undergo maintenance interventions so that its productivity increases (Duarte & Scarpin, 2022). A maintenance stop represents direct costs related to the maintenance itself and indirect costs associated with the lack of production (Kister & Hawkins, 2006).

Regarding the advantages of integrating project management into maintenance, Mtembi & Kanakana (2015) argue that a disciplined and personalized approach to project management can ensure that maintenance projects are more effective and efficient. An example of success is Kulkarni et al. (2017) who reduced diagnostic time in the aeronautical industry by around 9%, when they used the Critical Chain Project Management (CCPM) instead of the traditional project management method.

Knowing that out-of-service vehicles represent significant losses in profits for transport organizations, innovative maintenance management methods are necessary to keep costs within an acceptable limit (Kulkarni et al., 2017). Integrating project management can bring this innovative touch, as it allows for the maintenance of a technical memory of projects, which contributes to the continuous improvement of executions through lessons learned (Kerzner, 2009).

Regarding the challenges of integrating project management into maintenance, the lack of knowledge about project management can be considered, mainly in risk management, purchasing management, and communications management between those involved and the lack of literature on maintenance project management (Mtembi & Kanakana, 2015). Matos & Santos (2018) also consider that integrating project management in an organization depends on the

organizational culture, the context in which the organization is inserted, and the essential support from top management.

3. Methodology

The research methodology of this article consists of a comprehensive literature review on project management and maintenance management. Because it is only possible to produce new knowledge after knowing the limit of existing (Saunders et al., 2019).

4. Conclusion

The cost associated with fleet maintenance management represents one of the largest expenses in public passenger transport organizations. Therefore, it is urgent to look for solutions that optimize fleet maintenance, not only for the benefits from a financial point of view but also for increasing the quality of the service provided.

Fleet management must be recognized as a strategic factor in organizations providing transport services, as the quality of this management directly affects the quality of the service provided to customers. Fleet maintenance management is a specific area of fleet management that aims to keep vehicles in safe and efficient operating conditions. In summary, maintenance management involves the administration of tasks with technical and administrative aspects throughout the life cycle of equipment or installation (Ambriško & Teplická, 2021).

The literature review revealed that project management consists of applying knowledge, skills, tools and techniques to project activities to meet project

requirements. These project management skills have been successfully applied to aviation maintenance projects due to the significant costs associated with grounding these vehicles, and they have also been applied to large-scale maintenance projects. For future work, it is recommended that studies be carried out on the integration of project management with the maintenance of bus fleets in order to evaluate whether it also presents positive results, as observed in the previously mentioned areas.

References

- Ambriško, L., & Teplická, K. (2021). Proactive Maintenance as a Tool of Optimization for Vehicle Fleets, in Terms of Economic and Technical Benefits. *Acta Polytechnica Hungarica*, 235-249.
- APMI. (2007). *Norma Portuguesa – NP EN 13306:2007– Terminologia da Manutenção*. Caparica: IPQ - Instituto Português da Qualidade.
- Baily, P., Farmer, D., Jessop, D., & Jones, D. (2005). *Purchasing, Principles and Management* (9^a ed.). Financial Times/ Pearson Education.
- Ben-Daya, M., Kumar, U., & Murthy, D. (2016). *Introduction to Maintenance Engineering: Modeling, Optimisation, and Management* (1^a ed.). West Sussex: John Wiley & Sons, Ltd.
- Bivona, E., & Montemaggiore, G. B. (2010). *Understanding short- and long-term implications of “myopic” fleet maintenance policies: a system dynamics application to a city bus company*. Palermo, Italy: John Wiley & Sons, Ltd. <https://doi.org/10.1002/sdr.450>
- Deac, V., Cârstea, G., Bâgu, C., & Pârvu, F. (Fevereiro de 2010). The Modern Approach to Industrial Maintenance Management. *Informatica Economică*, 12.
- Dourado, A., & Viana, F. A. (Janeiro de 2021). Early life failures and services of industrial asset fleets. *Reliability Engineering & System Safety*. <https://doi.org/10.1016/j.ress.2020.107225>
- Duarte, A., & Scarpin, M. (2022). Maintenance practices and overall equipment effectiveness: testing the moderating effect of training. *Journal of Quality in Maintenance*. <https://doi.org/10.1108/JQME-04-2021-0033>
- Gonçalves, JB (2021). *Comparative Analysis of Operating Costs*. Master's Dissertation, Instituto Superior de Engenharia de Lisboa, Department of Mechanical Engineering, Lisbon.

- Kerzner, H. (2003). *Project Management: A Systems Approach to Planning Scheduling and Controlling*. John Wiley & Sons, Inc.
- Kerzner, H. (2009). *Project Management: A Systems Approach to Planning Scheduling and Controlling*. New York: John Wiley & Sons.
- Kister, T. C., & Hawkins, B. (2006). Maintenance planning and scheduling: streamline your organization for a lean environment. *B. Elsevier Butterworth-Heinmann*.
- Kulkarni, A., Yadav, D., & Nikraz, H. (2017). Aircraft maintenance checks using critical chain project path. *Aircraft Engineering and Aerospace Technology*, 879-892. <https://doi.org/10.1108/AEAT-10-2013-0186>
- Mishra, S., Mathew, T. V., & Khasnabis, S. (15 de Março de 2010). Single-Stage Integer Programming Model for Long-Term Transit Fleet Resource Allocation. *Journal of Transportation Engineering*, 281-290. From [https://doi.org/10.1061/\(ASCE\)0733-947X\(2010\)136:4\(281\)](https://doi.org/10.1061/(ASCE)0733-947X(2010)136:4(281))
- Mtembi, T., & Kanakana, M. (2015). *Project Management Approach for Turbine Maintenance in Power Utility Plants: The Case of a South African Maintenance Company*. Tshwane University of Technology, Department of Industrial Engineering. Pretoria, Republic of South Africa: 2015 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM). <https://doi.org/10.1109/IEEM.2015.7385945>
- Niewczas, A., Rymarz, J., & Debicka, E. (2019). Stages of operating vehicles with respect to operational efficiency using city buses as an example. *Eksploatacja i Niezawodność – Maintenance and Reliability*, 21–27. <https://doi.org/10.17531/ein.2019.1.3>
- Orošnjak, M., Jocanovi Ć , M., Gvozdenac-Uroševi Ć , B., Ševi Ć , D., Du Đ Ak, L., & Karanovi Ć , V. (2020). Bus Fleet Management – A Systematic Literature Review. *Promet - Traffic&Transportation*, 761-772. <https://doi.org/https://doi.org/10.7307/ptt.v32i6.3437>
- Pereira, FJ, & Sena, FM (2016). *Manutenção de Instalações Técnicas*. Publindústria.
- Pieterse, B. A.-K. (2022). Examining Critical Project Management Skills for Successful Delivery of Major Maintenance Projects: Insights from the United Kingdom Energy Sector. *Engineering Construction and Architectural Management*. <https://doi.org/10.1108/JQME-04-2021-0033>
- PMI. (2017). *A guide to the Project Management Body of Knowledge* (6^a ed.). Project Management Institute.
- PMI. (2021). *A guide to the Project Management Body of Knowledge (PMBOK® Guide 7)* (7^a ed.). (7^a ed.). Project Management Institute.
- Raposo, Hd (2017). *Models For Optimizing The Replacement Time Of Urban Transport Bus With Index To The Reserve Fleet*. Doctoral Thesis, University of Coimbra, Department of Mechanical Engineering, Coimbra.
- Saunders, M., Lewis, P., & Thronhill., A. (2019). *Research methods for business students* (8th ed.). Pearson.
- Sheng, J., & Prescott, D. (2019). A colored Petri net framework for modeling aircraft fleet maintenance. *Reliability Engineering and System Safety*, 67-88. <https://doi.org/10.1016/j.ress.2019.04.004>

- Smidt-Destombes, KS, van der Heijden, MC, & van Harten, A...-2. (2006). On the interaction between maintenance, spare part inventories and repair capacity for a kout-of-N system with wear-out. *European Journal of Operational Research*. <https://doi.org/10.1016/j.ejor.2005.02.043>
- Teplická, K., & Straka, M. (2020). Sustainability of extraction of raw material by a combination of mobile and stationary mining machines and optimization of machine life cycle. *Sustainability*, 1-13.
- Treml, J. E. (2020). *The Importance of Reliability-Centered Maintenance for Increasing Aviation Safety*. Undergraduate Monograph, Universidade Do Sul De Santa Catarina, Palhoça.
- Trombeta, A. (February 19, 2017). *Maintenance and Asset Management... What's the difference?* Obtained from LinkedIn: <https://pt.linkedin.com/pulse/manutenção-e-gas-de-ativos-qual-difference-trombeta-mba>
- TTC. (2022). *TTC's Green Bus Program: Final Results of TTC's Head-toHead eBus Evaluatin*. Toronto: Toronto Transit Commission.
- Vilaça, FM (2017). *Reliability analysis of a bus fleet*. Master's Thesis, Universidade Lusíada – NORTE, Vila Nova de Famalicão. Retrieved from <http://hdl.handle.net/11067/4388>
- Webster, J., & Watson, R. T. (June 2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, 26, xiii-xxiii.
- Zhou, Y., Kou, G., Xiao, H., Peng, Y., & Alsaadi, F. E. (2020). Sequential imperfect preventive maintenance model with failure intensity reduction with an. *Reliability Engineering and System Safety*, 1-11. <https://doi.org/10.1016/j.ress.2020.106871>

Can Location be a Competitive Factor for Hotels in Low-Density Territories? A Study in Alto Alentejo

Gorete Dinis. CARE - Research Center on Health and Social Sciences, GOVCOPP, CITUR, Portalegre Polytechnic University, Portugal. gdinis@ipportalegre.pt

Bruno Costa. Grupo Hoteleiro Vila Galé, Portugal, bbrmtc@hotmail.com

Abstract

Purpose: The objective of this paper is to analyze the competitive strategies implemented by hotel establishments and to assess whether their location in a low-density territory, the Alto Alentejo, is a differentiating and competitive factor.

Methodology: To achieve this objective, a quantitative methodological approach was adopted, using the questionnaire. A widely used technique in tourism research (Veal, 2011). The study population comprises hotel establishments, specifically hotels located in the Alto Alentejo region (25 hotels). Questionnaires were sent to the study population; however, only the questionnaires from 16 hotels were considered valid. Efforts were made to ensure that the sample was geographically representative by surveying hotels in different municipalities of the Alto Alentejo. The questionnaire is structured into 3 sections. The first section seeks to characterise the hotel unit surveyed, followed by the identification of the region's tourism products and resources and, in the third section, the aim is to analyse the competitive strategies adopted by the hotel unit and, in particular, the choice of the Alto Alentejo region to operate the hotel unit. The questionnaire consists of 23 questions, 8 of which are open-ended and the rest closed-ended, with a Likert scale (1 to 5). The Google Forms tool was used to construct the questionnaire. It was sent directly via email to the hotel managers. The data was analysed using SPSS version 27.0

Results: The results indicate that the presence of natural and cultural resources is strategic for hotel establishments, and that service quality and differentiation through innovation are among the most commonly used competitive strategies by these companies. Respondents considered it very important that the Alto Alentejo region has a large number of

historical/landscape sites and therefore has potential for tourism development. The hotel's location in this region, a more peaceful and rural area, was considered important, and it was not desirable for the establishment to be located in another region.

Research limitations: The study's limitation is that not all the hotels in the region were surveyed. In addition, the research technique used did not make it possible to delve into the respondents' opinions on other competitiveness strategies adopted by the companies.

Originality: This study contributes to expanding the knowledge about the competitiveness of hotel companies in low-density territories, an underexplored field of study, particularly in the Alto Alentejo region, where to the authors' knowledge, there is no applied research within this scope.

Keywords: *Tourism competitiveness; Low-density territory; Alto Alentejo region; hotels*

Acknowledgements

This work was financially supported by the research unit on Governance, Competitiveness and Public Policy (UIDB/04058/2020), funded by national funds through FCT – Fundação para a Ciência e a Tecnologia.

Reference

Veal, A. (2011). *Research methods for leisure and tourism: a practical guide* (4th edition). Prentice Hall.

Transparency as a key factor through agri-food and forestry system

Rui Rosa Dias. ISAG - European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal. ruirosadias@isag.pt e IPAM-Porto, rrd@universidadeeuropeia.pt

Alma Teresita Velarde Mendivil. Universidad de Sonora, México. alma.velarde@unison.mx

Abstract

Purpose: Analyze the agri-food transparency dimension in the (SCM) - Supply Chain Management in aspects such as design, process, and systems, contributing to the creation of agri-food sector value.

Methodology: The Delphi method is applied to reach conclusions on the prediction of agri-food in Portugal, over a period of 10 years. Given the complexity of the research problem, this method was considered relevant and appropriate, in the sense that it provides means to forecast trends, based on a series of questionnaires, where opinions, judgments and comments from experts were analyzed. In the case of this study, several sentences were designed to predict some future events, regarding the Portuguese agri-food sector.

Results: It is considered viable to implement transparency strategies, consequently broken down into business actions that enhance access to the truth (set of processes) of each food value chain: plant and animal through agri-food co-creation. This trend gathered a broad consensus of occurrence of 88.6% of the average situated at “agree” - level 4. On the other hand, developing a “transparency manual” applicable to all Portuguese agri-food industry was another result that points out a real trend, with an 88.9% of chance to occur by 2027.

Research limitations: It would be important to compare the findings with others agri-food realities. Secondly, could be interesting to find the managers opinions about the way to implement the co-creation and coopetition strategies without information loses or business damages.

Originality: This research study was the first to be carried out in Portugal, using the Delphi Methodology, trying to understand the influence of co-creation and co-opetition strategies, as tools to be implemented by the agri-food industry, to achieve more transparency.

Keywords: *Transparency; Supply chain; Information; Agri-food; Producers; Consumer.*

1. Introduction

Participation and positioning in competitive markets entails the ability to add value to the supply chain, that links the farmer with the consumer. In this sense, transparency in the agri-food sector, takes on relevance in the operation and functioning of the chain. Transparency implies the involvement of the actors or links in the food value chain, in collaborative work, where information is shared objectively and timely (Hofstede, 2003). Following this transparency definition, the research goals were defined, such as: i) *“will be possible the Portuguese consumer to have access to the truth (set of processes) of each food value chain: plant and animal through agri-food cocreation”?* ii) *“the Agri-food sector will have a standard of conduct adopted by all stakeholders that favors total transparency and access to information”?*

The evolution of the food system has involved changes in the food chain from farmer to consumer, transforming traditional links, incorporating food networks, where some chains compete with others. Transparency is based on the reciprocity of information between those who make up the supply chains; This implies knowing relevant aspects and characteristics of the market, such as the comprehensive product itinerary, food health insecurity, transformation and production processes, the techniques used, among others (Briz, De Felipe, & Briz, 2010).

History has framed various unfavourable food events, which have influenced consumer trust in traceability. Recovering consumer trust is a key factor for the food sector, which is observed in the “locavore” trend, which refers to the consumption of local products and minimizing the number of intermediaries

between producers and consumers. Coupled with changes in agriculture and agroindustry, such as urban-rural relations, they lead to rethinking rural development from the perspective of sustainability, local and territorial development, social and regional equity (Commandré, Macombe, & Mignon, 2021; Bocco, Garat, & Velarde, 2013).

The context of a digital and sustainable economy affects the restructuring and rethinking of the food supply chain, which must consider the following aspects: serving micro segments for personalized customization, additive manufacturing, and the adaptation of technological advances (Min, Zacharia, & Smith, 2019).

The resilience of supply chain management (SCM) to technological and market changes in aspects such as design, process, and systems, will provide value creation for the agri-food sector as a whole.

This article was designed based on the following structure: i) introduction where were presented the main topics about the research objectives; ii) Literature review, supported on the principals' research areas, such as - transparency in agri-food systems, Supply and Demand Chain, Coopetition and co-creation concepts, iii) methodology used, iv) results, and v) conclusions.

2. Literature Review

a. Transparency in agri-food system

In the globalized context, interest in the study and research of the agricultural sector industry has grown. This propensity lies in the recognition of the link or incidence of the agricultural economy in the economic perspective, security and health of the world population. There are various factors that affect the agricultural

economy, ranging from agents of climate change, production deficit, globalized competition, the sustainability of production systems, and the new rurality.

Transparency in supply chains is a tool to address some benefits of sharing information, such as: responsibility in the process is recognized, guarantees a transparent supply chain, increases trust of consumers, corporate tool in practice, accessibility to information on the environmental impact in food processing (Hobbs, 2004; Wadhwa et. al., 2010; Egels and Hansson, 2016). Faced with large, more complex and decentralized supply chains, the interest of companies and interested parties increases regarding transparency (Kashmanian, 2017).

Transparency in supply chains facilitates access to timely and significant information on products, regarding their origin, processing, sustainable production, minimizing food and resource waste; that is, information accessible from the producer to the consumer (Astill, et al., 2019). According to Hofstede (2003), “the transparency of a network chain is the degree to which all stakeholders in the network chain have a shared understanding and access to the information related to the product they request, without loss, noise, delays or distortions”, understanding the network chain, as the set of organizations or blocks that collaborate to deliver a product to customers.

Some authors highlight the adoption of technology in agri-food supply chains through the transparency enabled by blockchain, however its implementation must be approached with caution regarding the limitations that may arise in its adoption (Menon & Jain, 2021; Commandré, et al. 2021; Khan et. al., 2022; Kraft. Et al, 2022; Bosona & Gebresenbet, 2023).

Some studies refer to the relevance of linking the commitment and the organizations performance to the supply chain, emphasizing that the position of

a company in the market depends on offering quality products at the right time, and therefore on good management of the supply chain (Nyamah et al., 2022; Min, Zacharia & Smith, 2019).

2.2 Supply and Demand Chain

Agri-food supply chains face challenges derived from agricultural industrialization, consumer demand for food quality and safety, globalization, and free trade policies, as well as climate changes that significantly affect production. Additionally, there are a growing interest in terms of sustainability and transparency of the supply chain for the agricultural and agri-food sector. The assertive and timely response of the agri-food sector to address these challenges will avoid the imbalance between demand and supply (Bhat & Jõudu, 2019; Manglaa, et al., 2018).

A study carried out by Grzybowska (2021), presents a linkage of supply chain management and global changes, three key trends in supply chains were identified for three components of global changes: the digital supply chain to support Industry 4.0; the resilient supply chain to counteract unforeseen events (such as Covid-19); and, the sustainable supply chain to support, among others, the positive behaviour of producers and consumers.

The first trend refers to technology transfer, the transition from traditional supply to digital supply, which achieves integration and agility in the supply chain (industrial automation). The second corresponds to the resilience capacity of the agri-food sector to anticipate, prepare, respond, and adapt to unforeseen situations and environments. And finally, sustainable supply, which covers three dimensions: economic, social, and environmental, to contribute to the favourable

disposition of producers and consumers towards strengthening a sustainable food world.

2.3 Coopetition

“Coopetition” at first glance would be a term that brings together the concepts of cooperation and competitiveness, then a hybrid idea. But it is not true. It is a concept that goes much further.

According to some authors, such as Gast et al, (2015) and Morris et al, (2007), it can be analysed from the joint point of view, in which the fusion between cooperation and competition forms a new type of strategic relationship between companies (Dagnino and Padula, 2002; It is a concept that emerged in 1996, proposed and studied by Brandenburger and Nalebuff in their book 'Co-opetition: a revolutionary mindset that combines competition and cooperation in the marketplace'. These two authors end up stating that the term is the authorship of a businessman in the technology sector, more specifically Raymond Noorda (Brandenburger & Nalebuff, 1996). This is a critical issue, that is, while companies compete, they can also collaborate. In other words: coopetition can generate more competitiveness and be seen as a strategic factor.

However, many studies about coopetition have focused on large multinationals (Dagnino and Padula 2002; Dussauge et al. 2000; Kanter, 1994). In the specific case of SME - Small and Medium-Size companies and start-ups, the issue of coopetition has not been well developed. One of the big differences between these two different groups of companies' multinationals and SME, is that the resources that each type has at its disposal to generate competitiveness are different in quantity and "quality." Among other factors, multinationals have much larger budgets to study the markets and know, in effect, other external factors

that introduce a lot of variability in the markets. On the other hand, there is a greater vulnerability of SME to external factors.

Coopetition can occur between direct competitors, companies that complement each other and even between suppliers, since the competition is both for the market and for broader benefits (Brandenburger & Nalebuff, 1996; Bengtsson & Kock, 2014).

Morris et al. (2007) affirm that SME will contribute less towards a cooperative strategy, a network strategy, compared to large organizations, since the main competencies and tasks of small companies are still in development and the learning process in these, it is more unstable than in the large ones. In SME, other management priorities prevail. The need for entrepreneurs to grow their companies is identified as another factor that prevents them from devoting more focus to coopetition. These companies are more limited in investing their resources in it.

Nevertheless, above all, cooperation offers small businesses the possibility of reaching certain markets that they would not otherwise be able to access on their own. It is justified that, under a cooperation strategy, small organizations will also be able to access markets where leadership does play among large companies (Morris et al. 2007) and where innovation is considered an important piece for competitiveness.

This coopetition strategy can be considered as a management tool that generates possible business advantages that derive from synergies due to economies of scale and other risks, such as higher costs (Luo 2007; Gnyawali and Park 2009, 2011; Osarenkhoe 2010), research and development actions (Walley, 2007) and

access to knowledge and other resources (Bengtsson & Kock, 2000; Akdoğan Cingöz, 2012).

2.4 Cocreation

The consumer is aware of the implications of their purchasing decision power and level of participation in the marketing of the company's goods and services. It is in this context that the term value co-creation arises, postulated by Prahalad and Ramaswamy (2004), which describes the active role of the consumer in the creation of value both with the company, communities of professionals and other consumers.

Co-creation has been applied in various contexts, such as economic, educational, marketing, and social; Depending on the context of application, its meaning can vary from close collaboration between client and company, collaborative creation through interactive systems; or any act of creativity shared by two or more people (Avila-Garzon & Bacca-Acosta, 2024).

The connection between competitiveness and co-creation lies in the search for differentiation of companies in consumer markets, through added value in the offer of their goods and services supported by competitive advantages. The company's close relationships with customers facilitate the co-creation of exceptional experiences as the foundation of such sustainable competitive advantages. Customers become sources of competition, co-creation contributes to business models based on innovation, sustainability and social (Prahalad and Ramaswamy, 2004; Cavazos, 2016; Cabana, Cortés, & Peña, 2024).

3. Methodology

One of the research approaches commonly applied to identify consumer trends is the Delphi technique. Linstone and Turrof (1975) define this technique as “a method of structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to confront a complex problem.” The technique consists of choosing a group of experts, who are asked for their opinion on issues related to future events. The expert evaluations will be developed anonymously in periodic rounds, with the aim of reaching a consensus, maintaining the maximum autonomy of the participants. The Delphi technique stands out for its predictive value, which is based on the systematic use of intuitive judgments issued by a panel of experts. Among the characteristics of the method, we distinguish: the anonymity of the participants (avoids incidence of dominance, authority, or interpersonal adhesion), the interaction through controlled feedback (the experts are consulted on more than one occasion) and the quantitative analysis of the responses (reach the level of consensus).

Different types of Delphi studies are observed in the literature, particularly the one proposed by Van Zolingen and Klaassen (2003) is described, which includes three classifications: The classic Delphi (presents five features: anonymity, iteration, controlled feedback, group statistical response and stability in responses among experts); the policy Delphi (participation is encouraged to obtain a high level of divergent opinions, for the development of policies, selective anonymity, polarized group response and structured conflict are added to the characteristics); and the decision Delphi (the characteristic is “quasi-anonymity”, applied in decision-making on social developments, the choice of those who participate includes the hierarchy of decision-makers), Hanafin, (2004).

The Delphi method has its primary application has focused on predicting future scenarios in different sectors, among which is the Education sector (López, 2018, Maxey & Kezar, 2016) in the Health sector Spina et al, (2023); Palomino, et al, (2018), logistics Von der Gracht & Darkow, (2010), in Business, Egfjord and Sund, (2020), transportation, Linz, 2012; Mason & Alamdari, (2007) and energy, Celiktas & Kocar, (2010;) and in food industry sector, Antonelli et. al, (2022); Bañuelos et. al., (2021); Mariani et al, (2021); Gonzales et al, (2019), Chamorro et al, (2012), Real H., Dias, R., R., & Graça, P., (2020).

Following previous work (Dias & Nogueira, 2018), this study employed the Delphi method to reach conclusions regarding the prediction of agri-food trends in Portugal in a 10 years' time frame. This paper reports on the results of one such trend Agri-food philosophy as Slow Food (SF) principle to explore and discussing the future of agri-food systems. Given the complexity of the research problem, this method was deemed as relevant, in the sense that it gives information that could be used for forecasting trends, based on a series of questionnaires, where opinions, judgments and feedback from experts are retrieved and analyzed Brady, (2015); Gupta & Clarke, (1996); Hanafin, (2004). However, the method has been quite adopted in agri-food research, for example, to foresee the role of blockchain in traceability management in the agri-food sector Aldrighetti et al., (2021), to assess the sustainability of food systems and diets in the Mediterranean area (Allen et al., 2019), to forecast scenarios of the fresh tomato industry in Italy and in Germany Bazzani & Canavari, (2013), to produce a sustainability assessment tool to integrated food/non-food systems Mullender et al., (2020), to assess country-of-origin labelling for processed foods Su & Canavari, (2018), to forecast technology and innovation in southern Europe's agri-food sector Archontakis & Anastasiadis, (2019). The following sub-sections

presents the methodological structure, the criteria used to select the experts and the rounds procedures.

The following section will describe the selection criteria used to identify the panel of experts, the methodological process, and the procedures that allowed to implement the successive rounds of questionnaires.

3.1 The Delphi method

The focus of a Delphi methodology is to allow a consensus of judgmental opinions and perspectives from a group of experts Dajani et al., (1979). Historically, the Delphi method was “born” in ancient Greece through the ancient oracle at Delphi, which gave ideas about the future to those who sought advice (Gupta & Clarke, 1996). The Delphi method can be used to obtain opinions, insights and perspectives from experts on a specific topic, issue or theme to better support the decision makers Dalkey & Helmer, (1963). It also can be defined as "a method of structuring an effective group communication process, allowing a group of individuals to deal with a complex problem as a whole" Linstone & Turoff, (1975, p. 3). It involves collecting and creating information and possible trends, supported on a series of statements that allow controlled opinion feedback Adler & Ziglio, (1996). The Delphi method has been used in many scientific fields such as education, technology, and other sectors (Cornish, 1997). It is considered as a long-term forecasting technique based on the collective opinion and know-how of a panel of experts Gupta & Clarke, (1996). As argued by Fowles (1978), in the original Delphi process, the main factors to consider must be: i) expert's feedback; ii) structured information flow; iii) anonymity: each expert participant can't know about their peers.

3.2 Panel selection criteria

According to Brockhoff (1975) the groups of experts as small as four can perform well. In other hand, and supported on the Powell (2003) perspective, the representativeness of the panel is based more on the experts' quality rather than the number of experts invited to. In this case, three criteria were considered to select the expert's: i) professional backgrounds and experience; ii) connection with innovation processes and trends; iii) direct or indirect work in the agri-food.

As showed in Table 1, each expert's profile was carefully assessed. The final panel was constituted by 24 national experts with different sectors representativeness.

Table 1: Panel of experts: representativeness and selection criteria.

Sectors	Representativeness		Panel Selection Criteria
	Number of Experts	%	
Private	15	62.5	- Business connections with Agri-food trends and innovation. - Scientific publications concerning the transparency concept. - Professional positions - Decision makers.
Academic	6	25	
Public	3	12.5	
Total	N= 24	100	

Source: Own elaboration, 2024.

Experts' opinions regarding the 'Philosophy' principle were supported on a 5-point Likert scale to measure their agreement or disagreement about the possibility of occurrence (till 2027) of a 20 statements (table nr.2), (from: 1- 'extremely impossible' to 5- 'extremely possible').

Concerning the statements that were developed behind the ‘Philosophy’ principle, the next table shows all of them. The sixteen and seventeen are the ones related to this paper analysis, which are: i) *“The Portuguese consumer will have access to the truth (set of processes) of each food value chain: plant and animal through agri-food cocreation”* and ii) *“Agri-food and pastoral marketing will have a standard of conduct adopted by all stakeholders that favours total transparency and access to information.”*

Table II: Philosophy statements

‘Philosophy’ principle statements	
1	<i>“The appreciation of food will involve “taste training” and the “wise figure” of food traditions and artisans.”</i>
2	<i>“People and artisanal manufacturing processes will be more valuable in 2027 than price.”</i>
3	<i>“In 2027, table conversations will be given greater importance as an educational vehicle than technology.”</i>
4	<i>“Being at the table with family and friends will be synonymous with agri-food identity, shared beliefs and cultural affirmation.”</i>
5	<i>“In 2027, nutrition associated with physical exercise and meditation will be the most important axes for achieving harmony of being.”</i>
6	<i>“Food in 2027 will be valued through associated beliefs.”</i>
7	<i>The “divine flavor” will be contextualized in terms of consumer perception in 2027.</i>
8	<i>“The spirituality of food will be related to its origin.”</i>
9	<i>“Fasting, Ramadan and other human practices and behaviours (Kosher, Halal rituals) will gain food importance, in addition to the associated religiosity or divine worship and devotion that they may represent. E.g. purification/detoxification of the organism.”</i>
10	<i>“The spirituality of food and eating in Portugal will be perceived in 2027, through the balance between GOOD, CLEAN and FAIR food.”</i>

11	<i>"The agri-food and pastoral identity of each country and region will be related in 2027 to spirituality, religion and belief."</i>
12	<i>"Emotional states (joy, sadness, depression, love..) will be perceived as purchase drivers."</i>
13	<i>"Through the act of eat and the food, Religion expresses its beliefs."</i>
14	<i>"The moment associated with Sunday lunch, after an act of devotion, alone or in a group, is the greatest testimony of happiness that human beings can experience."</i>
15	<i>"The degree of knowledge about food preparation methods, will determine the purchase."</i>
16	<i>"The Portuguese consumer will have access to the <u>truth</u> (set of processes) of each food value chain: plant and animal through agri-food <u>cocreation</u>".</i>
17	<i>"Agri-food and pastoral marketing will have a standard of conduct adopted by all stakeholders that favours <u>total transparency</u> and access to information."</i>
18	<i>"In 2027 Portugal will have a faculty of agri-food and gastronomy, forestry and sea sciences."</i>
19	<i>"In 2027, Agronomy, Anthropology and Marketing will be part of the program contents of most national faculties."</i>
20	<i>"Alchemy will be incorporated in 2027 into the sciences of nature and food in its two aspects; nutrition - chemistry and philosophy of food."</i>

Source: Own elaboration, 2024.

A quantitative analysis of the experts' responses was made based on statistical measures, mainly - average, standard deviation, and coefficient of variation. To Toppinen et al. (2017), in several Delphi studies, the quantitative analysis is used to be determining about the position of the answers and assess the consensus of (dis)agreement. In this case, the average was chosen to know the "position" of the opinions. According to Dajani et al. (1979), in Delphi studies, a stopping criterion should be defined based on the consensus level. In this research study, two dispersion statistics were used: the standard deviation (SD) and the

coefficient of variation (CV). In the Delphi literature, a CV value equal or below to 0.5 is commonly accepted as an indicator of consensus Milli & Zúñiga, (2001).

To test the responses stability, changes in the relative CV between the three rounds were checked, as suggested by Mili and Bouhaddane (2021). The statements with less consensus were included in the next round for experts' re-evaluation. Table 2 explains the CV range values used to measure the degree of consensus.

Table III: Study consensus degree.

Degree of Consensus		
CV - Coefficient of Variation Range	Consensus Position	Round Decision
$CV \leq 0.15$	High degree of consensus	Accepted. Second Round
$0.16 < CV \leq 0.3$	Medium degree of consensus	Accepted. Second Round
$0.31 < CV \leq 1$	Low degree of consensus	Rejected. Third Round

Source: Own elaboration, 2024.

3.3 First round/pre-round

The goal of the pre-round was to evaluate the previous knowledge of each member concerning the factors proposed in the Delphi Model regarding the 'Philosophy' principle: socialization, spirituality, and knowledge. As mentioned before, a total of 20 statements (see table nr. 2) about the 'Philosophy' dimension were designed, two in particularly (sixteen and seventeen) was related with "transparency in agri-food sector".

The expertise contributions came from the panelists were also considered because they could itself contributed to promote a better questionnaire.

3.4 Second round - first feedback

All members were asked to report their agreement or disagreement about the literature-based statements, refined through expert comments from the pre-round. Descriptive statistics were assessed and the decision regarding the acceptance or rejection of statements was taken based on the coefficient of variation presented in the table 2. No substantial differences were registered in this coefficient between the rounds, with some sentences showing a change of CV less than 0.5%. This achievement, met the stability criterion suggested by Milli and Zúñiga (2001), allowing to conclude the process. Then, all experts were invited to compare each individual answer with the panel's average without any external influence. If the difference between the individual opinion and the panel's average was high, all experts had to justify why they would adjust or not their opinions.

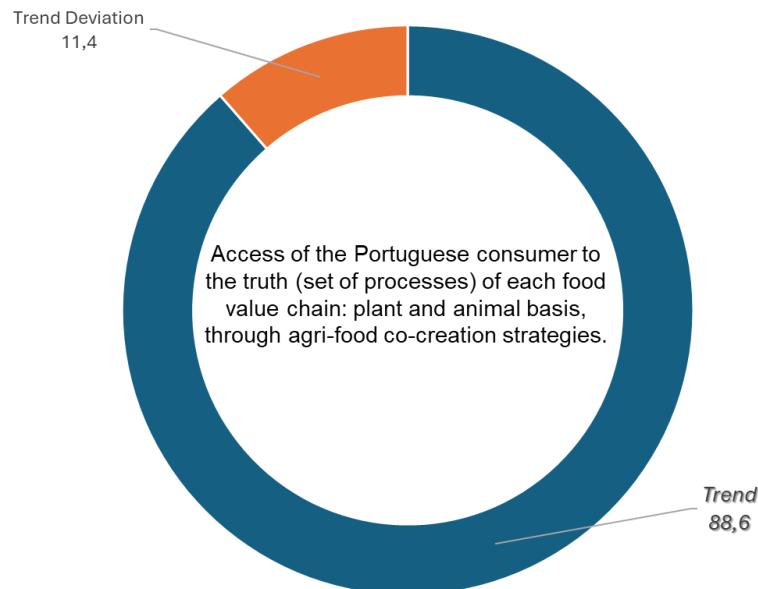
3.5 Third round and final feedback

As expected, when compared to the second round, the last one had a lower level of standard deviation. Hence, one of the objectives of the Delphi methodology was achieved, given that the study started with a considerably higher standard deviation, which is normal in these studies.

4. Results

Concerning the first analysed sentence - *“access of the Portuguese consumer to the truth (set of processes) of each food value chain: plant and animal basis, through agri-food cocreation strategies”*, as shown in the graphic nr.1, the experts estimate with a high level of consensus (CV=11.4%), that to achieve the transparency on the agri-food systems, every companies on this sector must agree that the cocreation marketing could be the strategy basis, to promote those transparent production, logistics and marketing behaviours. Based on the mean analysis, the most centric opinions were on the Likert scale fourth position, corresponding at “agree” level, with 66.6% of the panellists answered it. Additionally, 20.83% of them, has defended that this trend, could be effectively implemented because they had totally agreed (fifth Likert scale option). This effective trend follows the conclusion pointed out by several studies, such as *“the transparency of a network chain is the degree to which all stakeholders in the network chain have a shared understanding and access to the information related to the product they request, without loss, noise, delays or distortions, understanding the network chain, as the set of organizations or blocks that collaborate to deliver a product to customers”*, Hofstede (2003).

Figure 1. Transparency information/Consumer.



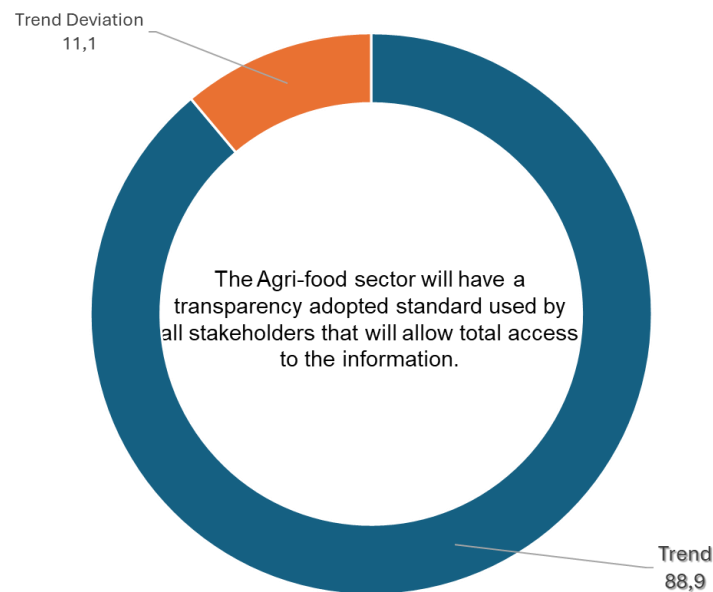
Source: Own elaboration, 2024.

Concerning the second sentence evaluated by the Delphi panel, supported on the final results (CV and mean), It's clear that this trend can occur on the timeframe studied - 2017/2027, with 88.6% (graphic nr. 2) of sure around the mean (4) level of consensus scale used. Regarding the mean analysis, this sentence has a little bit more strong opinions around the "totally agree" Likert scale option (5) with 25% of the experts selecting this option. This means that it will be possible until 2027 to discuss and implement the agri-food transparency standard index in Portugal, also supported by the consensus results around the fourth - "agree" Likert scale, with 62.5% of the panellists in this position.

Regarding the specific content of this sentence - *"the Agri-food sector will have a standard of conduct adopted by all stakeholders that favors total transparency*

and access to information”, the level of CV - 11.1% it’s a strong indicator that this could happened on the Portuguese agri-food sector, till 2027.

Graphic 2. Transparency/Agri-food sector Standard



Source: Own elaboration, 2024.

As mentioned on the graphic nr. 2 this trend could be possible until 2027, if all the Portuguese stakeholders understand that the benefits will be more than the potential costs regarding the need to change some patterns by doing business. This trend with 88.9% possibility to happened could be matched with the (Brandenburger & Nalebuff, 1996; Bengtsson & Kock, 2014) opinion, because they defend that the coopetition strategy can be used to reach better market positions and benefits.

5. Discussion

Concerning the idea about the need to implement more confidence in Portuguese agri-food information - from production to consumption, it would be necessary involve the consumer perspective by using agri-food cocreation strategies that allowed the consumer to directly participate in supply and demand chain. Some good examples can be followed, such as the French milk company/products named - *“cest qui le patron, la marque du consommateur”*. In other hand, and as a complementary action, using an agri-food transparency standard deal between all agents that participate on it, probably the coopetition strategy could be the way to reinforce the “truth” about food products. At the same time, assuming coopetition strategies, the agri-food companies could complement each other, and even between suppliers, to improve better managing performance and, to achieve market benefits, as pointed before by several author’s.

6. Conclusion

The results of this research showed that it would be appropriate, if the Portuguese food industry could define a national transparency strategy, supported, and probably financed by the Portugal Foods Association and other food agents, to achieve more world competitiveness. By the way, implementing a transparency framework shared by all the companies in this sector, probably would allow more information and marketing efficiency, reducing costs at the same time as trust grow among the different agents on the food chain and also on the consumption side.

Nowadays the world lives in an information society, but as seeing in many economy sectors, unfortunately the transparency is still a world discussion. Being

an important basis of life, the agri-food sector, by implementing a world transparency index, would be the leading business class to push all the others to do the same.

7. Limitations and future research

There are some study limitations that should be noted. First of all, only Portuguese experts participated as panelists with their opinions about the importance of transparency and its possible application on the agri-food sector. It would be important to compare these findings with others agri-food realities, using, for example, the benchmarking methodology. Secondly, could be adjustable to find the managers opinions about the way to implement the transparency standard, doing some deep interviews, as well as, to perceive how to implement the co-creation and coopetition strategies without information losses or business damages.

Probably it would be great if some new researchers could design a scientific approach around the following question: *“how to implement and design a new transparency standard based an index followed by all agri-food Portuguese stakeholders”?*

References

- Adler, M., & Ziglio, E. (1996). *Gazing Into the Oracle: The Delphi Method and Its Application to Social Policy and Public Health*. London: Jessica Kingsley Publishers.
- Akdoğan, A., & Cingöz, A. (2012). An Empirical Study on Determining the Attitudes of Small and Medium Sized Businesses (SMEs) Related to Coopetition. . *Procedia Social and Behavioral Sciences*, 58, 252-258.

- Aldrighetti, A., Canavari, M., & Hingley, M. K. (2021). A Delphi Study on Blockchain Application to Food Traceability. *International Journal on Food System Dynamics*, 12(1), 6–18. <https://doi.org/10.18461/ijfsd.v12i1.72>.
- Allen, T., Prosperi, P., Cogill, B., Padilla, M., & Peri, I. (2019). A Delphi Approach to Develop Sustainable Food System Metrics. In *Social Indicators Research*, (Vol. 141, Issue 3). Springer Netherlands. <https://doi.org/10.1007/s11205-018-1865-8>.
- Archontakis, F., & Anastasiadis, F. (2019). Technology and innovation in southern europe's agri-food sector: A delphi study. *International Journal of Technology Management & Sustainable Development*, 18(1), 17-36.
- Astill, J., Dara, R., Campbell, M. F., Fraser, E., Sharif, S., & Yada, R. (2019). Transparency in food supply chains: A review of enabling technology solutions. *Trends in Food Science & Technology*, Volume 91, Pages 240-247.
- Avila-Garzon, C., & Bacca-Acosta, J. (2024). Thirty Years of Research and Methodologies in Value Co-Creation and Co-Design. *Sustainability*, 16, 2360. <https://doi.org/10.3390/su16062360>.
- Bazzani, C., & Canavari, M. (2013). Forecasting a scenario of the fresh tomato market in Italy and in Germany using the Delphi method. *British Food Journal*, 115(3), 448–459. <https://doi.org/10.1108/00070701311314246>.
- Bengtsson, M., & Kock, S. (2000). Coopetition in business networks to cooperate and compete simultaneously. *Industrial Marketing Management*, 29 (5), 411–426.
- Bengtsson, M., & Kock, S. (2014). Coopetition—Quo vadis? Past accomplishments and future challenges. *Industrial Marketing Management*, Volume 43, Issue 2, Pages 180-188 <https://doi.org/10.1016/j.indmarman.2014.02.015>.
- Bhat, R., & Jõdu, I. (2019). Emerging issues and Challenges in Agri-Food Supply Chain . En R. Accorsi, & R. Manzini, *Sustainable Food Supply Chains*, (págs. 23-37). New York: Academic Press. Elsevier.
- Bocco, A., Garat, J. J., & Velarde, I. (2013). Sistemas agroalimentarios localizados y agriculturas familiares. *Revista de la Facultad de Agronomía, La Plata* , Vol 112 (SIAL):Pp. I-VIII.
- Bosona, T., & Gebresenbet, G. (2023). The role of blockchain technology in promoting traceability systems in agri-food production and supply chains. *Sensors*, 23(11), 5342.
- Brady, S. (2015). *The Delphi Method*. In *Handbook of Methodological Approaches to Community-Based Research*. Oxford: Oxford University Press.
- Brandenburger, A. M., & Nalebuff, B. J. (2011). *Co-opetition*. Crown Currency.
- Brandenburger, A., & Nalebuff, B. (1996). 'Co-Opetition: a revolutionary mindset that combines competition and cooperation in the marketplace'. New York: Doubleday Business.
- Briz, J., De Felipe, I., & Briz, T. (2010). Funcionamiento y transparencia en la cadena de valor: aplicación al caso del aceite de oliva en España. *Revista de Estudios Empresariales. Segunda época* , Número: 1. Pp 32-53.
- Brockhoff, K. (1975). The performance of forecasting groups in computer dialogue and face to face discussions. En H. Linstone, & M. Turoff, *The Delphi*

- method:techniques and then one is essentially studying a different technique* (págs. (pp 285-291)). London: Addison - Wesley.
- Cabana, S., Cortés, F., & Peña, M. (2024). Co-creación de valor y competitividad en las pequeñas y medianas empresas (PyMEs) del sector de las pastas alimenticias en la región de Coquimbo (Chile). *Información Tecnológica*, Vol. 35 N° 1.
- Cavazos, J. (2016). Co-creación y nuevos modelos de negocios en contextos emergentes. *Invenio*, 19(37), 47–55.
- Celiktas, M. S., & Kocar, G. (2010). From potential forecast to foresight of Turkey's renewable energy with Delphi approach. *Energy*, 35(5), 1973–1980. *Energy*, , 35(5), 1973–1980 .
- Commandré, Y., Macombe, C., & Mignon, S. (2021). Implications for Agricultural Producers of Using Blockchain for Food Transparency, Study of 4 Food Chains by Cumulative Approach. *Sustainability*, 13, 9843. <https://doi.org/10.3390/su13179843>.
- Cornish, E. (1997). *The study of the future*. Washington, D.C.: World Future Society.
- Dagnino, G., & Padula, G. (2002). “Coopetition Strategy: A New Kind of Interfirm Dynamics for Value Creation.” . Stockholm, May 9-11: Paper presented at the second annual European Institute for Advanced Studies in Management (EIASM) conference “Innovative Research in Management.
- Dajani, J. S., Sincoff, M. Z., & Talley, W. K. (1979). Stability and agreement criteria for the termination of Delphi studies . *Technological Forecasting and Social Change*, Volume 13, Issue 1, Pages 83-90 <https://doi.org/10.1016/0040-162>.
- Dalkey, N., & Helmer, O. (1963). An Experimental Application of the Delphi Method to the Use of Experts. *Management Science*, 9(3), 458-467.
- Dias, R. R., & Nogueira, M. (2018). *Agri-food trends in Portugal for 2027 according to the principles of Slow Food*. Ipam Porto: In Food Trends Seminar.
- Dussauge, P., Garrette, B., & Mitchell, W. (2000). Learning from Competing Partners: Outcomes and Durations of Scale and Link Alliances in Europe, North America and Asia. *Strategic Management Journal*, 21(2), 99–126. <http://www.jstor.org/stable/3094036>.
- Egels-Zandén, N., & Hansson, N. (2016). Supply chain transparency as a consumer or corporate tool: The case of Nudie Jeans Co. *Journal of consumer policy*, 39, 377-395.
- Fowles, J. (1978). *Handbook of futures research*. Connecticut: Greenwood P.
- Gast, J., Filser, M., Gundolf, K., & Kraus, S. (2015). *Coopetition research: towards a better understanding of past trends and future directions*. . DOI: 10.1504/IJESB.2015.068637.
- Gnyawali, D., & Park, B. (2009). Co-opetition and technological innovation in small and medium-sized enterprises: a multilevel conceptual model. *Journal of Small Business Management*, 47 (3), 308–330.
- Gnyawali, D., & Park, B. (2011). Co-opetition between giants: collaboration with competitors for technological innovation. *Research Policy*, 40(5):650–663.
- Grzybowska, K. (2021). Identification and Classification of Global Theoretical Trends and Supply. *Energies* , 14, 4414. <https://doi.org/10.3390/en14154414>.

- Gupta, U. G., & Clarke, R. E. (1996). Theory and Applications of the Delphi Technique: A bibliography (1975-1994). *Technological Forecasting and Social Change*, 53,185-211.
- Hanafin, S. (2004). *Review of Literature on the Delphi Technique*. Dublin, Ireland.: The National Children's Office.,
- Hobbs, J. E. (2004). Information asymmetry and the role of traceability systems. *Agribusiness: An International Journal*, 20(4), 397–415.
- Hofstede, G. J. (2003). TRANSPARENCY IN NETCHAINS, 2003 Conference 5-9. July 2003, . EFITA. Debrecen, Hungary: EFITA.
- Kanter, R. (1994). Collaborative advantage. . *Harvard Business Review*, 72(4):96–108.
- Kashmanian, R. M. (2017). Building greater transparency in supply chains to advance sustainability. *Environmental Quality Management*, 26(3), 73-104.
- Khan, M., Parvaiz, G. S., Dedahanov, A. T., Abdurazzakov, O. S., & Rakhmonov, D. A. (2022). The impact of technologies of traceability and transparency in supply chains. *Sustainability*, 14(24), 16336.
- Kraft, S. K., & Kellner, F. (2022). Can Blockchain Be a Basis to Ensure Transparency in an Agricultural Supply Chain?. *Sustainability*, 14(13), 8044.
- Linstone, H. A., & Turrof, M. (1975). *The Delphi method, techniques and applications*. USA: Addison Wesley Publishing.
- Luo, X., Rindfleisch, A., & Tse, D. K. (2007). "Working with rivals: The impact of competitor alliances on financial performance." . *Journal of Marketing Research*, 44(1): 73-83.
- Manglaa, S., Luthra, S., Rico, N., Kumar, D., Rana, N., & Dwived, Y. (2018). Enablers to implement sustainable initiatives in agri-food supply chains. *International Journal of Production Economics*, , Volume 203, pp 379-393.
- Menon, S., & Jain, K. (2021). Blockchain technology for transparency in agri-food supply chain: Use cases, limitations, and future directions. *IEEE Transactions on Engineering Management*, 71, 106-120.
- Mili, S., & Bouhaddane, M. (2021). Forecasting Global Developments and Challenges in Olive Oil Supply and Demand: A Delphi Survey from Spain. *Agriculture*, 11(3), 191. <https://doi.org/10.3390/agriculture11030191>.
- Milli, S., & Zúñiga, M. R. (2001). Exploring future developments in international olive oil trade and marketing: a Spanish perspective. *Agribusiness: An International Journal*, 17(3), 397-415.
- Min, S., Zacharia, Z., & Smith, C. (2019). Defining Supply Chain Management: In the Past, Present, and Future . *Journal of Business Logistics*, , 40(1): 44–55.
- Morris, M., Koçak, A., & Özer, A. (2007). Coopetition as a small business strategy: implications for performance. *Journal Small Bus Strategy* , 18(1):35–36.
- Mullender, S. M., Roesler, T., Salkanovic, E., Smith, J., & Smith, L. G. (2020). A delphi style approach for developing an integrated food/non-food system sustainability assessment tool. *Environmental Impact Assessment Review*, 84(May), 106415. <https://doi.org/10.1016/j.eiar.2020.106415>.

- Nyamaha, E. Y., Attatsia, P. B., Nyamahb, E. Y., & Opokub, R. K. (2022). Agri-food value chain transparency and firm. *Production & Manufacturing Research*, 10(1), 62–88. <https://doi.org/10.1080/21693277.2022.2062477>.
- Osarenkhoe, A. (2010). A study of inter-firm dynamics between competition and cooperation – A coopetition strategy. *Business Strategy Series*, Vol. 11 Iss 6 pp. 343 – 362 <http://dx.doi.org/10.1108/1751563101109305>.
- Powell, C. (2003). The Delphi technique: myths and realties. *Journal of Advanced Nursing*, 41(4), 376-382.
- Prahalad, C., & Ramaswamy, W. (2004). Co-creation experiences: the next practice in value creation. *Journal of Interactive Marketing*, Vol, 18, Nº 73, pp. 5-14.
- Real, H., Dias, R. R., & Graça, P. (2020). Mediterranean Diet conceptual model and future trends of its use in Portugal. . *Health Promotion International*, 36(2), 548-5.
- Su, J., & Canavari, M. (2018). Delphi study on country-of-origin labeling for processed foods. *Agricultural and Food Economics*, 6(8): 1-20. <https://doi.org/10.1186/s40100-018-0103-7>.
- Toppinen, A., Pätäri, S., Tuppurä, A., & Jantunen, A. (2017). The European pulp and paper industry in transition to a bioeconomy: A Delphi study. . *Futures*, 88, 1-14.
- Wadhwa, S., Mishra, M., Chan, F. T., & Ducq, Y. (2010). Effects of information transparency and cooperation on supply chain performance: a simulation study. *International Journal of Production Research*, 48(1), 145-166.
- Walley, K. (2007). Coopetition: An Introduction to the Subject and an Agenda for Research. . *International Studies of Management & Organization*, 37(2), 11–31. <http://www.jstor.org/stable/40397695>.

Session – “The Future of Work: Sustainability, Well-being, and Employee Motivation”

Chair: Márcia Lemos

Green Human Resource Management and The Iso 14001 Subtopic Contributing to Sustainable Development: A Bibliometric Approach

Eduardo Ortega. CEBER - Centre for Business and Economics, FEUC - Faculty of Economics, University of Coimbra, Portugal. eduardo.m.r.ortega@gmail.com

Arnaldo Coelho. CEBER - Centre for Business and Economics, FEUC - Faculty of Economics, University of Coimbra, Portugal. acoelho@fe.uc.pt

Neuza Ribeiro. CARME - Centre of Applied Research in Management and Economics, ESTG - Polytechnic of Leiria, Portugal. neuza.ribeiro@ipleiria.pt

Abstract

Purpose: This study aims to examine current literature, identify the intellectual framework of key authors, and highlight research trends at the intersection of green human resource management (GHRM) and the ISO 14001 subtopic.

Methodology: With climate change, companies are under strong pressure to adopt sustainable practices (Albitar et al., 2023). In this context, GHRM proves to be a promising tool in this fight (Xie & Lau, 2023), mainly used in synergy with the ISO 14001 standard (Seroka-Stolka & Fijorek, 2022). Although there is a conceptual basis for both (Akdeniz, 2023), the graphical representation of bibliometric maps allows for a holistic understanding of this scientific field. Based on the PRISMA statement, this study combined quantitative and qualitative bibliometric content analysis techniques (Eck & Waltman, 2010). A literature review was conducted presenting the main effects promoted by GHRM. Data were collected from Web of Science (WOS) and Scopus. The search strategy focused on a set of homographs and synonyms of the keywords (GHRM and

ISO 14001). For data analysis, the R software, the bibliometrix package, and VOSviewer were used.

Results: From 2014 to 2023, GHRM resulted in the merged dataset (n=1,118), leading to 647 final articles. Twelve articles on GHRM and ISO 14001 were included. Five clusters of term co-occurrence related to GHRM, and three clusters related to the central and subtopic emerged. Charbel Jabbour was the most prolific author in both cases. China was the most popular in GHRM studies, while Brazil stood out in the subtopic. The literature review showed that leadership and performance variables are widely seen as antecedents and consequents, respectively.

Originality: This study consolidates current knowledge and identifies future paths. Furthermore, it suggests practical applications for promoting sustainable development. Bibliometric mapping provides insights for academics, practitioners and policymakers. This work is groundbreaking in applying bibliometric analysis to the topic of GHRM and the subtopic ISO 14001.

Keywords: *Climate change; Sustainable development; Bibliometric analysis; International organization for standardization.*

Acknowledgements: This work is funded by National Funds through the FCT - Fundação para a Ciência e Tecnologia, I.P., under the doctoral scholarship ref. 2022.12305.BD

References

- Akdeniz, E. (2023). Toward a Sustainable Human Resources Management: Linking Green Human Resources Management Activities with ISO Standards. *SAGE Open*, 13(3), 1–28. <https://doi.org/10.1177/21582440231192907>
- Albitar, K., Al-Shaer, H., & innovation Liu, Y. S. (2023). Corporate commitment to climate change: The effect of eco- and climate governance. *Research Policy*, 52(2), 104697. <https://doi.org/10.1016/j.respol.2022.104697>
- Eck, N. J. van, & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84, 523–538. <https://doi.org/10.1007/s11192-009-0146-3>
- Seroka-Stolka, O., & Fijorek, K. (2022). Linking stakeholder pressure and corporate environmental competitiveness: The moderating effect of ISO 14001 adoption. *Corporate Social Responsibility and Environmental Management*, 29(5), 1663–1675. <https://doi.org/10.1002/csr.2311>

Xie, H., & Lau, T. C. (2023). Evidence-Based Green Human Resource Management: A Systematic Literature Review. *Sustainability*, 15(14), 10941. <https://doi.org/10.3390/su151410941>

Quality of life at work in the health sector: a study of some of its consequences

Susana Leal. Instituto Politécnico de Santarém e Life Quality Research Centre - CIEQV, Portugal. Susana.leal@esg.ipsantarem.pt

Isabel Borges. Hospital Distrital de Santarém, Portugal. isabel.borges@sapo.pt

Ângela Cunha. Hospital Distrital de Santarém, Portugal. angelacostabc@gmail.com

Abstract

Purpose: Our aim is to investigate healthcare workers' quality of life and its possible link to outcomes including burnout and intention to leave. The Work-Related Quality of Life (WQL) was conceptualized following the approach of Easton and Van Laar (2019), which comprises seven constructs. The secondary objective is to test whether gender, working hours and professional activity moderate the relationships between the variables.

Methodology: The empirical approach consists of two studies. In the first study, a sample of 140 technicians specialising in radiology was collected. In this study, the assessment included two primary measures: the Work-Related Quality of Life Scale-2 developed by Easton and Van Laar (2019) and the Maslach Burn-out Inventory - Human Services Survey (MBI-HSS) by Maslach, Jackson and Leiter (1997), translated and adapted by Silva and Pereira (2020). Subsequently, in the second study, a sample of 318 health professionals was collected. This subsequent research included the application of the Quality of Working Life Scale-2 developed by Easton and Van Laar (2019), as well as the use of the Anticipated Turnover Scale developed by Sul (2019). Data analysis was performed using multiple linear regression.

Results: The results show that WQL predicts both burnout and intention to leave among healthcare professionals. Regarding study one, professionals with higher levels of WQL have lower levels of emotional exhaustion, lower levels of depersonalisation, and also higher levels of personal accomplishment. The dimensions of work-related quality of life that have a greater impact on burnout are well-being, work-life balance, job satisfaction, stress and working conditions. In the second study, the intentions to leave of healthcare professionals are lower when they have a higher work-related quality of life.

Research limitations: Data collection took place during the COVID pandemic and the results may be affected by the working conditions that health professionals experienced

during this period. The study collected data from convenience samples, so the results cannot be generalised to the Portuguese population.

Originality: The health sector in Portugal is going through difficult times, with a shortage of professionals in most hospitals (at least the public ones). Retention of health workers is therefore a priority given the shortage of these professionals. Improving their quality of life at work can help reduce burnout and resignation rates. The study is original in that it investigates the facets of quality of life at work that can best contribute to reducing burnout and intention to leave among health workers in Portugal.

Keywords: *work-related quality of life; health; burnout; intention to leave; Portugal*

Acknowledgements: This work was funded by FCT - Fundação para a Ciência e Tecnologia (Foundation for Science and Technology) within the scope of the Life Quality Research Centre/CIEQV (project no. UID/CED/04748/2020).

References

- Easton, S., & Van Laar, D. (2019). WRQoL-2 Scale.
http://www.qowl.co.uk/researchers/qowl_downloads_qnr_overview.html
- Maslach, C., Jackson, S. & Leiter, M. (1997). The Maslach Burnout Inventory Manual (3rd ed.). <https://www.researchgate.net/publication/277816643>
- Silva, C. A. V., & Pereira, J. M. (2020). Risco de burnout nos técnicos de radiologia das unidades de saúde do Porto. *Saúde & Tecnologia*, 23(1), 38–50.
- Sul, S. (2019). Tradução e validação para a população portuguesa da Antecipated Turnover Scale [Dissertação de mestrado, Escola Superior de Enfermagem de Lisboa ESEL, Repositório Institucional da Escola Superior de Enfermagem de Lisboa].

Social Sustainability: Fostering Employee Well-Being in Contemporary Business Environments

Elisabete Nogueira. *Portugalense University, Research on Economics, Management and Information Technologies, REMIT, Rua Dr. António Bernardino Almeida, 541-619, P 4200-072, Porto, Portugal, elisabete.s.nogueira@gmail.com*

Manuel Névoa. *Portugalense University, Research on Economics, Management and Information Technologies, REMIT, Rua Dr. António Bernardino Almeida, 541-619, P 4200-072, Porto, Portugal, manuel.nevoa@gmail.com*

Abstract

Purpose: In the fiercely competitive landscape of global business today, effective management of top-tier human resources holds paramount significance. The stakeholder theory underscores the importance of addressing diverse stakeholder needs to enhance firm performance (Nogueira et al., 2023). Moreover, there is a growing emphasis on employee welfare as a critical factor in navigating the complexities of modern business (Salem et al., 2023). Within organizations, social sustainability has emerged as a complex concept with the potential to enhance employee well-being significantly (Prieto-Sandoval et al., 2019). Recognizing the urgent need to understand social sustainability, this study aims to investigate its impact on employees' well-being. Acknowledging employees as the most valuable organizational asset, this research seeks to comprehensively understand how social sustainability influences their well-being.

Methodology: An online survey was conducted to evaluate perceived social sustainability and employee well-being. The framework for perceived social sustainability was evaluated based on metrics assessing labor fairness and performative social sustainability, was evaluated based on the research conducted by Hale et al. (2019). Perceived employee well-being was assessed based on metrics evaluating aspects such as the meaningfulness of work, levels of encouragement received from the organization, quality of relationships with supervisors and colleagues, and the safety and comfort of work conditions.

Results: The Partial Least Squares method was employed to test the research model hypotheses. The analysis revealed a significant positive effect of social sustainability on employee well-being, confirming the proposed model. The coefficients and confidence intervals support the hypothesis that social sustainability significantly influences employee well-being. Social sustainability significantly influences employee well-being through various interconnected mechanisms. Embracing principles like fair labor

standards and environmental responsibility fosters motivation and job satisfaction among employees. Social sustainability initiatives lead to tangible improvements in working conditions and compensation, ensuring equitable treatment and financial stability for employees. Additionally, they create opportunities for career development, empowering employees to grow and succeed. Moreover, a culture of inclusion and respect, fostered by social sustainability efforts, promotes mental health and job satisfaction. Ultimately, integrating social sustainability into business operations benefits both employees and the organization, fostering an engaged, productive workforce and organizational success.

In conclusion, our analysis has highlighted the significant and positive influence of social sustainability on employee well-being. By recognizing and embracing the vital role that social sustainability plays in enhancing employee well-being, companies can create a more supportive, fulfilling, and inclusive work environment. Investing in social sustainability is not only ethically sound but also a strategic imperative for organizations seeking to promote the health, happiness, and productivity of their workforce.

Research limitations: The study's sample, gathered through non-probabilistic and convenient means, may not accurately represent the broader Portuguese population. Moreover, relying solely on the viewpoints of Portuguese employees limits the generalizability of the findings to other contexts.

Originality: The originality of the paper lies in its exploration of the relationship between social sustainability and employee well-being within the contemporary global business landscape. It contributes to the existing literature by emphasizing the critical role of effective human resource management and the growing importance of employee welfare in navigating the complexities of modern business environments.

Keywords: *Social Sustainability; employee well-being.*

Funding information: This work was supported by the UIDB/05105/2020 Program Contract, funded by national funds through the FCT (Fundação para a Ciência e a Tecnologia), I.P.

References

- Hale, J., Legun, K., Campbell, H., & Carolan, M. (2019). Social sustainability indicators as performance. *Geoforum*, 103 (February), 47–55.
<https://doi.org/10.1016/j.geoforum.2019.03.008>

- Nogueira, E., Gomes, S., & Lopes, J. M. (2023). A meta-regression analysis of environmental sustainability practices and firm performance. *Journal of Cleaner Production*, 426. <https://doi.org/10.1016/j.jclepro.2023.139048>
- Prieto-Sandoval, V., Jaca, C., Santos, J., Baumgartner, R. J., & Ormazabal, M. (2019). Key strategies, resources, and capabilities for implementing circular economy in industrial small and medium enterprises. *Corporate Social Responsibility and Environmental Management*, 26(6), 1473–1484. <https://doi.org/10.1002/csr.1761>
- Salem, N. H., Ishaq, M. I., Yaqoob, S., Raza, A., & Zia, H. (2023). Employee engagement, innovative work behaviour, and employee wellbeing: Do workplace spirituality and individual spirituality matter? *Business Ethics, the Environment and Responsibility*, 32(2), 657–669. <https://doi.org/10.1111/beer.12463>

The motivations of professionals in the hospital sector: A quantitative study

Susana Bernardino. CEOS.PP/ISCAP/P.Porto, Portugal. susanab@iscap.ipp.pt

Tatiana Pereira. ISCAP/P.Porto, Portugal. 2200468@iscap.ipp.pt

Abstract

Purpose: The aim of this paper is to analyse the motivations of employees in the hospital sector and to understand the extent to which socio-demographic characteristics and occupational status are able to influence different types of motivation.

Methodology: The methodology of the research is quantitative. The research has an exploratory nature, and the data analysis has a descriptive nature. The primary data were collected by means of a questionnaire survey that was administered to hospital professionals in the north of the country.

Results: The results show that intrinsic motivation is predominant over extrinsic motivation among professionals working in the hospital sector. The research also suggests that gender, academic qualifications, sector of activity and employment relationship condition the level of intrinsic motivation observed.

Research limitations: This study is limited by the sample size and characteristics, especially its focus on the hospitals in the north of the country.

Originality: The study of motives has been conducted in the context of professionals in the hospital field

Keywords: *Motivation; Intrinsic Motivation; Extrinsic Motivation; Hospital Sector; Health professionals.*

Acknowledgements: This work is financed by portuguese national funds through FCT - Fundação para a Ciência e Tecnologia, under the project UIDB/05422/2020

1. Introduction

Motivation has been identified as an important element in the well-being of employees and the success of organisations (Caetano & Vala, 2007). Despite the crucial role that motivation plays in the management of people and organisations, it is also a very challenging subject, whose complexity is further increased by the fact that what motivates an individual can vary from person to person (Nohria et al., 2008) and according to the specific context experienced (Legault, 2016; Ryan & Deci, 2000). For this reason, research into the understanding of motivation in organisations is considered to be particularly important (Paula, 2005).

Work in the hospital sector, although very challenging, is fundamental for society as it involves activities and practices carried out by professionals and multidisciplinary teams to help the population with health problems or at risk (Costa, 2017).

In this context, it is important to understand the motivations of professionals working in the hospital sector and the main factors that may influence their level of motivation. With this in mind, the paper is structured as follows. Section 2 presents the literature review. This is followed by a description of the methodology in section 3. The results are presented in section 4, followed by a discussion in section 5.

2. Literature Review

Overall, motivation can be understood as a force, an impulse, a need or a predisposition that allows the subject to outline a particular action with a concrete goal (Pintrinch, 2003; Kumi, 2023). Thus, a motivated behaviour is a behaviour

that is activated and directed towards a specific goal (Rodrigues, 1998; Triwulan et al., 2023).

For Spector (2002), motivation is related to the direction, intensity and persistence of a behaviour over time. According to the same author, direction refers to the choice of certain behaviours among a variety of possible behaviours. Intensity, in turn, refers to the effort a person puts into performing a task, while persistence refers to the continued adaptation to a particular type of behaviour over time. Similarly, Robbins (2005) argues that motivation has three main characteristics, namely direction – that means. the focus on the goal and how to achieve it; intensity, which is the difference between satisfaction/commitment; and persistence, which shows whether it is constant over time.

Motivation is closely related to the strength of the motives or impulses that initiate and sustain an individual's behaviour, and as long as this strength persists, the behaviour will remain active (Berry, 1998; Lopes, 2012; Kumi, 2023).

Work motivation can be understood as a psychological state of willingness to fulfil and achieve a goal, and a person who says they are motivated to work is presenting someone with a positive way of doing the same task. However, it is necessary to understand the motives that lead and influence employees to this state of mind. However, it should also be noted that motivation varies between individuals and is also influenced by environment or context (Daniel & Metcalf, 2005; Kumi, 2023; Rocha, 2007;).

There are two main types of motivation (Triwulan et al., 2023): intrinsic and extrinsic. Intrinsic motivation refers to an inherently satisfying or pleasurable engagement that is non-instrumental in nature, meaning that the action is not dependent on an outcome external to the behaviour itself (Legault, 2016). On the

other hand, extrinsic motivation refers to the performance of a behaviour that is fundamentally dependent on outcomes that are separable from the individual's own action and is therefore classified as instrumental in nature (Legault, 2016; Ryan & Deci; 2000; Kotera et al., 2022).

3. Methodology

To reach the research objectives, a quantitative methodology was chosen, using a questionnaire survey (Borg & Gall, 2002), aimed at hospital workers in the northern region, in the three sectors of activity: private, public and social.

The questionnaire included a first section to collect general information from the respondents, which was socio-demographic and related to professional situations.

The second section of the questionnaire aimed to assess the individual's motivation. Like Barbosa (2013), who had already tested dimensions relevant to the study in another sector, the WEIMS scale - Work Extrinsic and Intrinsic Motivation Scale - developed by Tremblay et al. (2009) was used as a reference.

The questionnaire was distributed online between June and July 2022 and yielded 153 valid responses.

4. Results

General characterisation of respondents

Table 1 summarises the main characteristics of the sample of 153 hospital workers.

Table I: Sample characterisation

Variable		N	%
Age	18-29	35	22,9
	30-39	58	37,9
	40-49	39	25,5
	50-59	18	11,8
	Over 60	3	2,0
Gender	Female	113	73,9
	Male	40	26,1
Academic qualifications	Lower than Secondary School	2	1,3
	Secondary Education	24	15,7
	Bachelor	81	52,9
	Master	28	18,3
	PhD	18	11,8
Professional Category	Operational Assistant	15	9,8
	Technical Assistant	15	9,8
	Health assistant	15	9,8
	Nurse	70	45,8
	Doctor	9	5,9
	Other	29	19,0
Sector of Activity	Private Sector	48	31,4
	Public Sector	85	55,6
	Social Sector	20	13,1
Type of employment contract	Temporary work regime	2	1,3
	Service agreements	7	4,6
	Permanent contract	82	53,6
	Fixed-term contract	39	25,5
	Contract for an uncertain term	23	15,0
Number of years of service in the organisation	Less than 1 year	13	8,5

	From 1 to 3 years	38	24,8
	From 4 to 10 years	44	28,8
	From 11 to 15 years	22	14,4
	From 16 to 20 years	12	7,8
	From 21 to 25 years	10	6,5
	Over 25 years	14	9,2

Source: Own Elaboration

Motivation of professionals in the hospital sector

Table 2 systematises the responses to the different variables included in the questionnaire. The variables analysed include the fact that respondents feel satisfied when they successfully carry out difficult tasks (average score of 3.80 on a 5-point scale), the fact that work is an important part of their life (average score of 3.75) or the fulfilment associated with learning new things (average score of 3.67). On the other hand, the variables least valued by respondents were the remuneration received (average score 2.51) or the fact that doing their job allowed them to earn money (average score 2.98).

Table II: Characterisation of the motivation variables

Variable	(1) %	(2) %	(3) %	(4) %	(5) %	Average	Standard Deviation
Because this is the type of work I chose to do to attain a certain lifestyle.	9,8	18	16,3	49	6,5	3,24	1,13
For the income it provides me.	22,2	34	16,3	26	2	2,51	1,15
Because I derive much pleasure from learning new things.	4,6	12	14,4	49	19,6	3,67	1,07
Because it has become a fundamental part of who I am.	6,5	12	19,6	43	19	3,56	1,12

Because I want to succeed at this job, if not I would be very ashamed of myself.	15	15	20,3	37	13,1	3,18	1,27
Because I chose this type of work to attain my career goals.	13,1	18	23,5	33	12,4	3,14	1,23
For the satisfaction I experience from taking on interesting challenges.	5,2	11	20,3	43	20,9	3,63	1,09
Because it allows me to earn money.	17	18	19,6	40	5,2	2,98	1,22
Because it is part of the way in which I have chosen to live my life.	5,9	14	22,2	45	13,1	3,46	1,07
Because I want to be very good at this work, otherwise I would be very disappointed.	7,8	12	20,9	43	16,3	3,47	1,14
Because I want to be a "winner" in life.	11,1	16	30,1	35	7,8	3,12	1,12
Because it is the type of work I have chosen to attain certain important objectives.	7,8	14	22,2	46	9,8	3,37	1,09
For the satisfaction I experience when I am successful at doing difficult tasks.	3,3	8,5	15	51	22,2	3,8	0,99
Because this type of work provides me with security.	5,2	16	25,5	46	7,8	3,35	1,01
Because this job is a part of my life.	4,6	7,2	19,6	46	22,2	3,75	1,03

Note: (1) Does not correspond at all; (5) Corresponds exactly.

Source: Own Elaboration

In order to summarise the information obtained, a factor analysis was carried out using principal component analysis, which led to the formation of two main components: intrinsic and extrinsic motivation.

The first component, called intrinsic motivation, has an eigenvalue of 7.378, with an explained variance of 49.19 per cent, showing a very good level of internal reliability (Cronbach's alpha = 0.929) (Table 2). The second component, related to extrinsic motivation, has an eigenvalue of 1.853, explaining 12.35% of the total variance in the data and a Cronbach's alpha of 0.815.

Table III: Factor Analysis

	Loading	Eigenv alues	% Variance	% Acc. Variance	Cronbach' s Alpha
Component 1. Intrinsic Motivation		7,378	49,19%	49,19%	0,929
Because I derive much pleasure from learning new things.	0,739				
Because it has become a fundamental part of who I am.	0,849				
Because I want to succeed at this job, if not I would be very ashamed of myself.	0,712				
Because I chose this type of work to attain my career goals.	0,705				
For the satisfaction I experience from taking on interesting challenges	0,821				
Because it is part of the way in which I have chosen to live my life.	0,711				
Because I want to be very good at this work, otherwise I would be very disappointed.	0,739				
Because I want to be a “winner” in life.	0,518				
Because it is the type of work I have chosen to attain certain important objectives.	0,646				
For the satisfaction I experience when I am successful at doing difficult tasks.	0,750				
Because this job is a part of my life.	0,769				
Component 2: Extrinsic Motivation		1,853	12,35%	61,54%	0,815
Because this is the type of work I chose to do to attain a certain lifestyle.	0,735				
For the income it provides me.	0,815				
Because it allows me to earn money.	0,865				
Because this type of work provides me with security.	0,656				

Extraction method: principal component analysis; Rotation method: varimax, with Kaiser normalisation; KMO measure = 0.901; Bartlett's test of sphericity: $p < 0.000$.

Source: Own Elaboration

To gain a better understanding of the motivation of hospital workers, the index of each of the main components was then calculated based on the weighted average of the factor weights. A bivariate analysis was used to examine the extent to which the respondents' level of motivation was conditioned by their socio-demographic characteristics and professional situation.

The analysis of Table 4 shows that for all age groups the level of intrinsic motivation is always higher than extrinsic motivation. However, it can be seen

that the people with the highest level of intrinsic motivation are those aged 60 and over. It is also in this age group that we see a greater difference between the levels of intrinsic and extrinsic motivation.

Analysing motivation according to gender, it can be seen that for women, intrinsic motivation (3.58) is considerably higher than extrinsic motivation (2.97). In men, intrinsic motivation is also the most relevant, although the difference in the levels of each dimension is not as marked (average value of 3.22 and 3.07 respectively).

In respondents with different levels of qualifications, intrinsic motivation is always the most evident. However, it is in the case of individuals with a doctorate or bachelor's degree that the difference between intrinsic and extrinsic motivation is most marked. In cases where respondents have less than a secondary education qualification, the relevance of intrinsic motivation is very close to that of extrinsic motivation (average value of 2.55 and 2.52, respectively).

When considering the sector of work, the private sector has the highest level of motivation (mean of 3.72 on intrinsic motivation and mean of 3.18 on extrinsic motivation). The results show that in both the private and public sectors, health professionals' intrinsic motivation is higher than their extrinsic motivation. In the social sector, intrinsic and extrinsic motivation have the same average value (3.34).

It can also be seen that the average values observed for the intrinsic motivation component are higher than those for the extrinsic component, regardless of the length of service or employment contract held (Table 4); however, the difference between the two levels of motivation is greatest for employees with a permanent contract; on the other hand, the average values observed are the closest for

temporary workers (average value for intrinsic motivation 3.62; average extrinsic motivation: 3.5).

Table IV – Intrinsic and extrinsic motivation according to individual characteristics and professional situation

Variable	Category	Intrinsic Motivation	Extrinsic motivation
Age	18-29	3,63	3,12
	30-39	3,48	2,97
	40-49	3,37	2,97
	50-59	3,29	2,86
	Over 60	4,47	3,38
Gender	Female	3,58	2,97
	Male	3,22	3,07
Academic qualifications	Lower than Secondary School	2,55	2,52
	Secondary Education	3,26	3,13
	Bachelor	3,41	2,89
	Master	3,50	3,00
	PhD	4,22	3,35
Sector of Activity	Private Sector	3,72	3,18
	Public Sector	3,38	2,82
	Social Sector	3,34	3,34
Type of employment contract	Temporary work regime	3,62	3,50
	Service agreements	3,63	3,19
	Permanent contract	3,25	2,80
	Fixed-term contract	3,92	3,45
	Contract for an uncertain term	3,54	2,86
Number of years of service in the organisation	Less than 1 year	3,69	2,88
	From 1 to 3 years	3,58	3,30
	From 4 to 10 years	3,63	2,97
	From 11 to 15 years	3,21	3,01
	From 16 to 20 years	3,31	2,81
	From 21 to 25 years	2,87	2,37
	Over 25 years	3,60	2,95

The correlations between the variables analysed were then analysed using Pearson's coefficient.

The analysis performed shows that there are statistically significant differences in the level of intrinsic motivation observed in the respondents according to gender ($r=-0,182$, $\alpha=0,05$), level of academic qualification ($r=0,306$, $\alpha=0,01$), sector of activity ($r=-0,170$, $\alpha=0,05$) and Type of employment contract ($r=0,163$, $\alpha=0,05$). On the other hand, regarding extrinsic motivation, there was no statistically significant relationship between the respondents' level of extrinsic motivation and any of the variables related to their socio-demographic characteristics or professional situation.

5. Discussion

The research shows that the component where hospital workers are most motivated is intrinsic motivation. The results show that it is the content of the work itself, rather than the context or consequences of the work, that hospital workers value most, with aspects such as professional fulfilment, overcoming and learning being prominent. As Vallerand (2014) points out, intrinsic motivation plays an important role in the hospital work environment.

As suggested by the literature (Legault, 2016; Ryan & Deci; 2000), personal characteristics and the external context are able to influence motivation levels, although only with regard to intrinsic motivation, and their influence on extrinsic motivation levels has been demonstrated.

6. Conclusion

The research aimed to understand the main motivations of professionals in the hospital sector and the extent to which these are or are not conditioned by the characteristics of the employees and their professional status. It can be concluded that there is a predominance of intrinsic motivation over extrinsic motivation among the professionals working in the sector. The results obtained indicate that some personal characteristics and professional conditions are associated with higher levels of intrinsic motivation, but that this influence is not observed at the level of extrinsic motivation. The research therefore suggests the existence of different employee groups regarding motivation. This finding has practical implications for hospital human resource managers, who need to develop human resource management strategies tailored to the motivational profile of different groups of employees, and thus improve employee performance, which is fundamental to the overall performance of healthcare systems.

The main limitation of the research carried out was the size and composition of the sample, in particular the fact that it was located in the north of the country for reasons of convenience. In addition, the research was based on the perceptions of staff. We should also mention the exploratory nature of the research and the descriptive nature of the article, which suggest caution in generalising the results obtained.

In the future, it would be useful to extend the research to cover all of Portugal and to include other health professionals, to allow a comparative study of the motivations for working.

References

- Barbosa, J. M. V. (2013). *A Satisfação com as Recompensas e a Motivação da Força de Vendas em Portugal*. (Tese de Mestrado em Gestão Comercial). Faculdade de Economia da Universidade do Porto, Portugal.
- Berry, L. (1998). *Psychology at work. An introduction to industrial and organizational psychology*. Singapore: McGraw-Hill.
- Borg, W. & Gall, M. (2002). *Educational research: An introduction* (7ª ed.). Nova Iorque: Longman.
- Caetano, A. & Vala, J. (2007). *Gestão de Recursos Humanos - Contextos, Processos e Técnicas*. Lisboa: RH Editora.
- Costa, I. (2017). *As condições de trabalho, os riscos gerais e os riscos psicossociais nos profissionais de saúde: Um estudo no pólo de Valongo do Centro Hospitalar São João do Porto*. Dissertação de Mestrado Psicologia do Trabalho e das Organizações. Universidade Fernando Pessoa - Faculdade de Ciências Humanas e Sociais, Portugal.
- Daniel, T. & Metcalf, G. (2005). *The Science of Motivation*. Society of Human Resource Management. White Paper.
- Kotera, Y., Aledeh, M.; Rushforth, A., Otoo, N., Colman, R. & Taylor, E. (2022). A Shorter Form of the Work Extrinsic and Intrinsic Motivation Scale: Construction and Factorial Validation, *International Journal of Environmental Research and Public Health*, 19 (21), 13864. <https://doi.org/10.3390/ijerph192113864>
- Kumi, S. (2023). *Organizational culture, workplace motivation and innovative work behaviour in the healthcare service delivery: a systematic review*. Master Dissertation in Healthcare Management, Universidade do Algarve. <https://sapientia.ualg.pt/handle/10400.1/19955>
- Legault, L. (2016). *Intrinsic and extrinsic motivation*. Clarkson University, Potsdam, NY, USA.
- Lopes, C. (2012). *Os fatores motivacionais dos trabalhadores da administração local*. (Tese de mestrado em gestão estratégica de recursos humanos). Instituto Politécnico de Setúbal, Portugal.
- Nohria, N., Groysberg, B., & Lee, L. E. (2008). Employee motivation. *Harvard business review*, 86(7/8), 78-84.
- Paula, F. (2009). *Os instrumentos do marketing direto na editora recorde*. (Pós Graduação em Finanças e Gestão Corporativa). Universidade Cândido Reis, Brasil.
- Rocha, J. (2007). *Gestão de recursos humanos na Administração Pública*. Lisboa: Escolar Editora.
- Rodrigues, C. (1998). *Motivação*. Porto: Edições Contraponto.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67.
- Spector, P. E. (2002). *Psicologia nas Organizações*. São Paulo: Saraiva.

Session – “Perspectives on Sustainability, Branding and Consumer Behavior”

Chair: Marco Bagheri

Advancing and sustaining an academic career: Perspectives of female academics

Anatu Mahama 1. Anglia Ruskin University, Peterborough, United Kingdom. E-mail Anatu.mahama@aru.ac.uk

Valery Emeson 2. Anglia Ruskin University, Peterborough, United Kingdom. E-mail Valery.emeson@aru.ac.uk

Abstract

Purpose: There has been progress in women’s equality, however, women still remain under-represented as both full professors and in leadership roles in academia (O’Connell and McKinnor, 2020; Winslow and Davis, 2016; Cardel et al., 2020). Our research seeks to explore how women in academia advance and sustain their careers. By sharing the lived experiences of women who are thriving in academia, the research aims to inspire and empower move women to challenge the status quo to foster their career acceleration.

Methodology: Taking a phenomenology approach and using interviews with a group of 17 women, we delved into the experiences of women in academia as they navigate their career paths. Through reviewing firsthand accounts and perspectives from women at various stages of their academic careers, we explored their lived experiences as they advance and sustain careers.

Results: The study identified building a support system; being aware of systemic barriers and challenging inequality; one’s attitude and building relevant skills set; and persistent stereotypes and gender roles as categories that can either support or stifle the career progression of women. By examining women’s lived experiences in academia, we provide a holistic approach that allows for a deeper understanding of the nuanced

dynamics at play and advocate for more practical institutional policies that would promote gender equity and diversity in academic settings. Our research concludes that there is more awareness of the challenges faced by female academics. However, much more improvement is needed around gender equality to accelerate the career progression of women.

Research limitations: Whilst this research benefitted from detailed account of personal experiences of its participant, it is limited by its mainly qualitative approach and does not allow us to shed light on any cause-and -effect relationships or test any hypothesis to enrich the understanding of participants.

Originality: This paper, to the best of our knowledge, does not contain any previously published material and does not include any fabricated or falsified content.

Keywords: Gender equality, self-promotion, career progression, work-life balance, institutional policies

Perspective of Social Media in the Influence of Decisions to Purchase Beauty Products in Fortalesa (Brazil)

Zaila Oliveira. University of Maia, Portugal; CEOS.PP, Polytechnic of Porto, ISCAP, Portugal; Christus University Center - UNICHRISTUS, Fortaleza, Brazil. zailaoliveira@gmail.com

Lorrayna Alcantara. Christus University Center - UNICHRISTUS, Fortaleza, Brazil. lorrayna.alcantara@gmail.com

Sara Teixeira. CEOS.PP, Polytechnic of Porto, ISCAP, Portugal. sarat@iscap.ipp.pt

Sandrina Francisca Teixeira. CEOS.PP, Polytechnic of Porto, ISCAP, Portugal. sandrina@iscap.ipp.pt

Abstract

Purpose: The cosmetics industry, driven by changes in consumer behavior, is constantly evolving to provide consumers with access to quality, innovative, safe, and sustainable products. (de Souza et al., 2023; Hassan et al., 2021). According to the Brazilian Association of the Toiletries, Perfumery, and Cosmetics Industry, Brazil is the fourth country in the world ranking in the consumer market with an estimated value of 26.9 billion dollars. According to data from 2022, there was growth in the categories of children's products, solar products, oral hygiene, hair care, bath products, and makeup (ABIHPEC, 2023). The fierce competition in the cosmetics industry makes it necessary to implement marketing strategies to compete and win. Therefore, the marketing communication strategy through social networks implemented by brands allows for new practices and interaction with the public and the adoption of new forms of communication (Paço & Oliveira, 2017; Widianingrum et al., 2021). With the advent of social media, they became a direct channel between cosmetics brands and the target, emerging as the driving force for companies to promote themselves and connect with the consumer. (de Souza et al., 2023). Currently, consumers are more sensitive to what they consume and seek information before purchasing, so acquiring information in a more accessible way will facilitate their decision-making. Social media becomes a facilitator of information for consumers to make their decisions. Consumers can easily obtain detailed information about a product before making purchasing decisions (Alam et al., 2023). Social media consists of a platform intended for multiple purposes (e.g. entertainment, education, gathering information or news, reaching large audiences) and can be accessed by anyone who has the Internet. There are different types of social media e.g. social review

websites, social networking websites, image-sharing websites, discussion websites, video submission websites, and community blogs (Talreja & Chaturvedi, 2023). Social media is currently considered the best media for establishing a communication strategy, being a great opportunity for cosmetics companies to place products without having to pay a large fee for advertising (Rosara & Luthfia, 2020). According to Statista (2024), the cosmetics industry is expected to generate revenue worth almost US\$129 billion by 2028. Thanks to the popularity of social media channels (e.g. Instagram, YouTube), the cosmetics industry has become relevant. This type of media creates a demand for beauty products and helps bridge the gap between the company and the consumer. In context, the study also highlights that social networks are more than influencers who talk to their audience while trying out or promoting cosmetics. With social commerce, you can buy beauty items directly on social media apps (e.g. TikTok). Ringim and Reni (2019) in their study they found that social networks have a significant positive mediating effect on consumer behavior and intention to purchase cosmetic products. Social media marketing activities influence users' perception of the brand, value, and value of relationships with cosmetics brands (Binwani & Ho, 2019). One of the communication forms with the greatest impact on social media is influencers and e-WOM (electronic word-of-mouth). Indriana et al. (2022) found that e-WOM and celebrity endorsement have positive and significant effects on brand image and purchase intention of cosmetic products. Rizomyliotis et al. (2024) alludes that Generation Z consumers are influenced by social media influencers to buy cosmetic products. Influencers play a crucial role in the beauty industry, using their makeup skills to work with cosmetic brands, and receiving remuneration by increasing brand awareness among social media audiences (Hassan et al., 2021). Therefore, this research aims to understand the aspects of social media in the behavior of beauty product consumers in the purchasing process.

Methodology This article takes a quantitative approach, using a structured questionnaire about the process of buying beauty products online. The questionnaire was made available on the Google Forms platform and was applied in Fortaleza (Brazil), which is the fifth largest city in Brazil and its metropolitan region is considered one of Brazil's main urban centres. The study subjects were Brazilian consumers (N=221) aged 18 who use social media tools. The social media studied were social networks (Facebook, Instagram, Twitter, WhatsApp, YouTube, Pinterest), apps and online shops. The data was collected between September and October 2020. The 'shopping process' and 'beauty products' constructs were measured using a 5-point Likert scale, from 'very often' (1) to 'never' (5). The data collected was statistically analysed using multivariate analysis.

Results: The main results are that consumers are very influenced by social media, especially the Instagram platform. Despite using a lot of technology, as corroborated by the literature, there is still some insecurity when it comes to buying from online shops, which may be related to payment security issues, but at the same time, there is an increase in online shopping. The study also reveals that digital advertising has less influence on consumers' purchasing decisions than social media. Virtual consumers

show a certain interactivity with the brand and are keen to repeat the shopping experience, placing exceptional value on delivery times and purchase specifications.

Although the city in which the study was carried out is one of the largest and most cosmopolitan in Brazil, the results obtained cannot be generalised to the population as a whole,

This study suggests that cosmetics companies should invest more in social networks than in digital advertising. As for their online shops, they should take special care with the security of the payment methods they offer, reduce delivery times, and detail the specifications of their products.

Originality: This study highlights the importance of using social media to promote cosmetics products and brands, as well as to increase their online consumption.

Keywords: *Social media, consumer behavior, beauty products, purchasing decision.*

References

- ABIHPEC. (2023). *A Indústria De Higiene Pessoal, Perfumaria E Cosméticos*. Chrome-Extension://Efaidnbmnnnibpcajpcglclefindmkaj/Https://Abihpec.Org.Br/Site2019/Wp-Content/Uploads/2023/01/Panorama-Do-Setor_Atualizacao_16.01.24.Pdf
- Alam, A. R. P., Hendriadi, H., Suwardi, W. Z., Islamiyah, N., & Monalisa, M. (2023). Social Media, Halal Marketing and Consumer Behavior (Study in Fashion and Cosmetic Product). *Journal Ar-Ribh*, 6(2).
<https://journal.unismuh.ac.id/index.php/ar-ribh/article/view/12814>
- Binwani, K. J., & Ho, J. S. Y. (2019). Effects of Social Media on Cosmetic Brands. *Journal of Marketing Advances and Practices*, 1(2), 1–10.
- De Souza, A. O., Ribeiro, R. S., Estival, K. G. S., & Dos Santos Corrêa, S. R. (2023). Digitalizando a Beleza: Explorando o Universo dos Cosméticos e Sua Revolução Pelas Mídias Sociais. *Contribuciones a las Ciencias Sociales*, 16(11), 28862–28890.
- Hassan, S. H., Teo, S. Z., Ramayah, T., & Al-Kumaim, N. H. (2021). The Credibility of Social Media Beauty Gurus In Young Millennials' Cosmetic Product Choice. *Plos One*, 16(3), E0249286. <https://doi.org/10.1371/journal.pone.0249286>
- Indriana, A., Sholahuddin, M., Kuswati, R., & Soepatini, S. (2022). The Impact of e-Wom and Celebrity Endorser on Purchase Intention Mediated By Brand Image: A Study on Halal Cosmetic Products. *Journal of Business and Management Studies*, 4, 197–210. <https://doi.org/10.32996/jbms.2022.4.4.29>
- Paço, A., & Oliveira, S. (2017). Influence Marketing in the Fashion and Beauty Industry. *Estudos em Comunicação*, 119–136. <https://doi.org/10.20287/ec.n25.v1.a07>
- Ringim, K. J., & Reni, A. (2019). *Mediating Effect of Social Media on the Consumer Buying Behaviour of Cosmetic Products*. 291–308.
<https://doi.org/10.2991/icame-18.2019.33>

- Rizomyliotis, I., Konstantoulaki, K., & Giovanis, A. (2024). Social Media Influencers' Credibility and Purchase Intention: The Moderating Role of Green Consumption Values. *American Behavioral Scientist*, 00027642241236172. <https://doi.org/10.1177/00027642241236172>
- Rosara, & Luthfia, A. (2020). *Factors Influencing Consumer's Purchase Intention on Beauty Products in Youtube*. 37-46. <https://doi.org/10.15722/jds.18.6.202006.37>
- Statista. (2024). *Cosmetics Industry*. Statista and Facts. <https://www.statista.com/topics/3137/cosmetics-industry/>
- Talreja, M., & Chaturvedi, V. (2023). The Role of Social Media Advertising in Promoting Makeup Products. *Journal of Public Relations and Advertising*, 2. <https://www.mcu.ac.in/jpra/2023/Volume-2-Issue-2-July-December-2023/05-jpra-volume-2-issue-2-july-december-2023.pdf>
- Widianingrum, Urhayatin, Mani, L., Farid, A., Mohamed, T. M., Molina, D., De-La-Hoz, A., Mendoza, F., Ibragim, E. S., Akhat, S. B., & Dinara, K. M. (2021). The Antecedents of Purchasing Decision of Cosmetic Products of Lizzie Parra Beauty in Social Media. *Journal of Theoretical and Applied Information Technology*, 99(11). <http://www.jatit.org/volumes/Vol99No11/1Vol99No11.pdf>

Redefining Work and Travel: An Holistic Review of Digital Nomadism

Bárbara de Sousa. ISAG—European Business School, Porto, Portugal; Research Centre in Business Sciences and Tourism (CICET—FCVC), Porto, Portugal; Universidad Santiago de Compostela, Spain; and Applied Management Research Unit (UNIAG), Instituto Politécnico de Bragança, Bragança, Portugal. barbara.sousa@isag.pt

María Bastida. Universidad Santiago de Compostela, Spain. maria.bastida@usc.es

Elvira Vieira. ISAG—European Business School, Porto, Portugal; Research Center in Research Centre in Business Sciences and Tourism (CICET—FCVC), Porto, Portugal; Applied Management Research Unit (UNIAG), Instituto Politécnico de Bragança, Bragança, Portugal; and IPVC—Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal. elvira.vieira@isag.pt

Ana Pinto Borges. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC); IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal. anaborges@isag.pt

Abstract

Purpose: This study aims to identify and analyze existing research on digital nomadism, highlighting its social implications and increasing impact on society. Although the number of digital nomads has grown exponentially in recent years, research has been slow to develop a common understanding and a comprehensive perspective on this phenomenon. The research offers insights into the complex nature of digital nomadism, introducing a Digital Nomad (DN) Framework based on three key dimensions: identity, work structure, and travel.

Methodology: A systematic literature review was performed on publications available in the Scopus and Web of Science databases from 2001 to 2023. By adhering to defined guidelines, 1047 papers were selected for analysis. The study employed VOS viewer for bibliometric analysis and science mapping, providing a visual depiction of the knowledge structure and dynamics of the DN research landscape. The analysis identified four clusters: Digital Nomadism Dimensions, Digital Nomads Context, Balance Work-Life-Leisure, and Impacts.

Results: The study's findings reveal a complex interaction between personal freedom, dependence on technology, and mobility in digital nomadism. The DN Framework

clarifies the main dimensions of this lifestyle, demonstrating how identity, work structure, and travel contribute to a comprehensive understanding of digital nomadism. The bibliometric analysis uncovered four main research clusters, offering a detailed view of the current knowledge landscape. This study provides practical implications for policymakers to adjust regulations and infrastructure to support digital nomads, and for businesses to offer flexible work arrangements and invest in co-working spaces.

Originality: This research enhances the understanding of digital nomadism by presenting a thorough analysis of its social implications and impacts. It offers valuable insights for future research, particularly in longitudinal and cross-cultural contexts, and addresses the evolving consequences of this transformative social phenomenon. The study serves as a foundational resource for scholars and practitioners exploring the multifaceted implications of digital nomadism, with practical recommendations for improving support for digital nomads and developing targeted strategies to accommodate this growing demographic.

Keywords: *Digital Nomadism; Social Phenomenon; DN Dimensions; Literature Review; Scientometrics.*

Forecasting CO2 Emissions in Spain's Industrial Sector Using Machine Learning models

Benayad Wafaa. University of Abu Bakr Belkaid - Tlemcen -, Algeria, wafaa.benayad@univ-tlemcen.dz

Abdelli M. El-Amine. University of Western Brittany, Western Economics and Management Laboratory -LEGO, France.m.abdelli@univ-brest.fr

Halimi Wahiba. University of Abu Bakr Belkaid - Tlemcen, Algeria. wahiba.halimi@univ-tlemcen.dz

Abstract:

Purpose: Focusing on the industrial sector in Spain to analyze CO2 emissions requires a deep understanding of the factors that affect these emissions and the application of effective policies to mitigate them, as the development of clean industries and the adoption of environmental technology contribute to achieving sustainability goals and reducing emissions for a better ecological future.

Try to predict carbon dioxide emissions in the industrial sector using machine learning models and the aim was to provide an accurate and effective predictive model that contributes to reducing the significant challenges faced by the region in its path to reduce carbon dioxide emissions.

Methodology: The study employed a quantitative approach, focusing on the application of the most of machine learning models that are interested in prediction of CO2 emissions in the industrial sector for the period 2000 to 2021 and the adoption of eleven variables. Various machine learning models were applied by comparing between them: the TPOT Re model, the LassoLarsCV model the Linear SVR and NuSVR models.

Results: For the detection of the important variables that have a significant impact on carbon dioxide emissions, where the coal variable, which is considered a primary source of energy in most industries and generation sectors, ranked first, followed by oil products, including: Gasoline, diesel and other petroleum derivatives and carbon dioxide emissions per capita, while the variable of most minor importance was crude oil, although this does not mean that it does not contribute to the exacerbation of the issue,

For the comparison between the applied machine learning models, the values of the predictive accuracy indicators were nominated The TPOT Re model, which relies on Automatic search for the best model configuration (among the machine learning models used), knowing that the LassoLarsCV model, linear regression model, and model were

nominated as the two best models in terms of modeling and prediction, followed by the Extra Decision model, while SVR, Linear SVR, and NuSVR models provided unacceptable and poor performance, which shows that these models are not suitable in this case

Research limitations: As technology continues to advance and analytical models evolve, machine learning applications in the field of CO₂ emissions forecasting are expected to expand to other variables and types of regressions and models than cited ones above. The analysis exclusively focuses on the industrial sector.

Originality: The originality of the study lies in its exclusive focus on the use of machine learning models, amounts 16 models, in detecting the important variables impacting carbon dioxide emissions CO₂ and predicting this emission by comparing between those models.

Keywords: *Industrial sector; CO₂ emission, Machine learning, Prediction models, TPOT Re model, LassoLarsCV model, Extra Decision model, SVR, Linear SVR, NuSVR models*

Managerial Skills and Vocational Training on the Performance of Small and Medium-Sized Enterprises: Evidence from European Union

Mohammed El Amine Abdelli. Universidad Autónoma de Madrid, Spain.
mohammed.abdelli@estudiante.uam.es

Adriana Perez-Encinas. Universidad Autónoma de Madrid, Spain.
adriana.perez.encinas@uam.es

Ernesto Rodriguez Crespo. Universidad Autónoma de Madrid, Spain.
ernesto.rodriguez@uam.es

Abstract

Purpose: Our study aims to highlight the impact of Managerial skills and Vocational training on the Performance of SMEs.

Methodology: We selected a sample of 4926 SMEs from 10 European countries. We tested binary logistic regression using SPSS software.

Results: We analyzed the extent to which the findings influenced theory and practice in training and management skills in SMEs and identified the limitations of the research. This research gives possible solutions to decision-makers and contributes to closing a gap in Managerial skills and Vocational training in SMEs.

Originality: Our paper contributes to shedding light on the extent of the impact of Training Programs for Employees, Level of Interpersonal and Communication Skills, Level of Computer and IT Skills, and Level of Technical Vocational other than IT.

Keywords: *Managerial skills; Training; Performance; IT; SME.*

Petroleum Profit Tax and Foreign Direct Investment In Nigeria

Nassour Abdelkader. Faculty of Economics Commerce and Management sciences, Sidi Bel Abbes University –Algeria, nassour_abdel@yahoo.fr

Efanga, Udeme Okon Ph.D. Department of Banking and Finance, Alex Ekweme Federal University, Ndufu Alike, Ebonyi State, Nigeria, udemeefanga@gmail.com

Abed Abdelkrim Gherici Dr. Faculty of Economics Commerce and Management sciences, Sidi Bel Abbes University –Algeria, abdelkrim.abded@yahoo.fr

Abstract

Purpose: The main objective of this study was to assess the impact of Petroleum Profits Tax on Foreign Direct Investment in Nigeria.

Methodology: The design selected for this study was ex-post. Data used for the analysis was obtained from the Central Bank Statistical Bulletin and the Federal Inland Revenue Service Annual Reports. To achieve this objective, a model based on empirical and theoretical studies was formulated. In this model, foreign direct investment inflows into Nigeria were used as the dependent variable and Petroleum Profits Tax was used as the independent variable in the model. The study used the Fully Modified Least Squares (FMOLS) model for data analysis.

Results: The findings from this study indicate that the Petroleum Profits Tax has a significant negative impact on foreign direct investment in Nigeria with the P-value of the study being 0.0078. From the conclusion the researcher concluded that the tax has a significant negative impact on foreign direct investment in Nigeria. Based on the above, the researcher recommended that the government and relevant monetary authorities review the tax policy by reducing tax rates and providing tax incentives and tax relief to companies operating in the downstream sector in Nigeria to encourage further investment in Nigeria.

Originality: This study is overall original and novel and the above mentioned author is the sole author of this paper.

Keywords: Taxation, Central Bank of Nigeria, FMOLS, Foreign Direct Investment, Petroleum Profits Tax, Tax Relief.

1. Introduction

One of the true sources of revenue for a country's government is taxes. Taxes provide a means for governments to obtain revenue for their expenditures. For governments to collect taxes, they must create a supportive environment in terms of providing security and infrastructure that allows businesses to thrive. To the extent that taxes generate revenue for the government, they must follow certain principles so that taxpayers can pay without feeling resentment or burden (Kyari, 2020). Ability to pay must be taken into consideration. It is important to note that a government's tax policy can affect the number and type of investors in a country, which can affect revenue generation and the overall performance of the economy and deter potential foreign investors. An optimal tax policy can attract and encourage foreign direct investment in the country. Taxes are not only a means of government revenue but can also be used to regulate the economy and redistribute income by imposing higher taxes on high income earners and lower taxes on low income earners (Efanga et al., 2020).

Taxes are mandatory contributions from the state to its citizens. An efficient and effective tax system can ensure basic needs and services within the country, attract foreign direct investment, achieve economic growth, achieve a fair distribution of income and wealth, and maintain a balance in the economy (Ndagi, 2016).

Nigeria today has a number of factors that prevent adequate inflow of foreign direct investment. These include insurgency, kidnapping, corruption, tax rates, tariffs, weak public institutions, poor external image, etc. On the other hand, while foreign direct investment provides capital, new technology, marketing, and management, it can also reduce domestic savings, entrepreneurship, and investment rates, which in turn inhibits competition through exclusive product agreements with host governments and prevents the country from capturing much of the value that benefits the host economy. According to Efanga et al. (2020), Nigeria has been stimulating economic growth by using tax revenues from various tax policies aimed at attracting foreign investors in the form of foreign capital and technology transfer. To generate revenue, the Nigerian government

imposes taxes such as corporate tax, petroleum profits tax, customs duties, and excise duties. The questions are about the taxation system in Nigeria. How do these taxes affect the perception of foreign companies investing in Nigeria? The objective of this study is to find out whether this tax policy will lead to an increase or decrease in foreign direct investment in Nigeria. The following are the research questions for this study: What is the relationship between the petroleum profits tax and the amount of foreign direct investment in Nigeria?

The following null form hypotheses will serve to guide the study:

H01: Profit tax on petroleum has no significant relationship with the amount of foreign direct investment in Nigeria.

2. Literature Review

It is simply a tax levied by a state on the income, assets, capital gains, goods and services, and property of individuals and businesses. Taxation involves coercion; taxpayers have to pay taxes whether they want to or not. Once a tax is collected, individuals have no right to choose whether to pay it or not, except of course by illegal means such as tax evasion (Aderinton and Abdullahi, 2007). As a fiscal policy tool, taxes play four economic roles in the development of a nation and a state: (i) They help in redistributing resources from private needs to public needs. (ii) Taxes are very often used as part of a general policy tool for governance. (iii) Taxes can be used to promote economic growth. In most developing countries where personal savings are low, taxes are able to finance the investment required. (iv) Taxes can be, and often are, used as a tool to promote social justice through the redistribution of wealth and income. Through various tax and subsidy systems, countries can promote a more equal society.

The benefits (effectiveness and efficiency) of taxes can be measured using several parameters, such as the revenue generation potential and their impact on consumption and saving behavior in the economy. Different types of taxes may be subject to this

measurement, although the entire tax system cannot be measured comprehensively. Taxes play an important role in an ideal economy, for example as a tool to generate revenue to cover expenditure (Dalton, 1964). It is used to generate government revenue for the state to cover expenditure and provide services and infrastructure such as schools, hospitals, roads, and also to provide social benefits to individuals in case of unemployment, sickness, etc. Stabilization Instrument. It is used as a stabilization tool, similar to inflation, and to stimulate economic growth. For example: (a) If a country or state experiences inflation, it can deal with the situation by increasing direct taxes on personal income and personal business profits. This will reduce business investment while also reducing the demand for consumer goods. (b) If the economy of a country or state experiences a recession, the general level of taxes in the economy can be reduced. A means of income and wealth distribution. Here, the imposition of progressive taxes reduces income inequality somewhat and in some cases this may be the main reason for imposing taxes. A tool of regulation. Taxation helps to regulate the consumption and production of certain goods in a country or state. (Suppose a government wants to limit the consumption of certain types of imported goods. The government can impose high import duties on these items to increase their prices, which may result in a decrease in the demand for those items.

As a means of payment, the government uses taxes to pay salaries for teachers, aid workers, and medical personnel in hospitals and other areas, to combat poverty, to build social facilities such as hospitals and schools, and to provide irrigation for agricultural development. These are used for defense, to provide ammunition for the armed forces, police, and military personnel, and to build barracks and their uniforms. As a mobilization tool (Asada, 2005), taxes help mobilize resources for paying retirement benefits, settling public debts and loans, and ultimately maintaining the welfare of the state's citizens.

According to Evans (2009), since the early days of human civilization, taxation has always been a topic of debate between taxpayers and governments. The concept of

taxation has given rise to many controversies and serious political struggles over a long period of time. Due to its importance, various economic theories have been proposed to administer an effective and clear tax system. Thus, taxation is generally categorized into three main theories namely, Ability to Pay Principle, Utility Principle and Equal Share Principle. However, in this paper, we will only briefly discuss these theories.

As the name clearly indicates, this means that taxes should be levied according to an individual's ability to pay based on their income. It is a well-known fact that public spending should be expected from the haves and not the have-nots. This principle dates back to the 16th century. This principle was systematically expanded by the 17th-century Swiss philosopher Jean-Jacques Rousseau (1712-1778), then by the French political economist Jean-Baptiste Say (1767-1832), and finally by the British economist John Stuart Mill (1806-1873). This is the basis of progressive taxation, since as the tax rate increases, so does the amount taxed. This ability-to-pay principle is arguably the fairest tax system and is widely implemented in developed countries. The most common and widely accepted justification of ability-to-pay is based on the sacrifice of one party for the other. The payment of a tax is considered an expropriation of the taxpayer, since the taxpayer leaves the state with an amount that could have been used for other personal purposes. Conversely, in this concept, there is no uniform way to measure justice for victims, depending on whether it is an absolute, marginal or proportional assessment.

Under this theory of taxation, individuals may be required to pay taxes in proportion to the benefits they receive from the services provided by the government. This should be based on the premise that there is an exchange relationship between the taxpayer and the state.

The state benefits the taxpayer by providing various services and other so-called social goods. Furthermore, this theory professes and asserts that equality or fairness in taxation emphasizes on requiring individuals to pay a portion of taxes in proportion to the benefits they receive in return for the services provided by the state. Although

this theory considers an exchange relationship between the taxpayer and the state, many difficulties have been identified in the application of the theory. The biggest problem facing the utility principle or benefit approach is how to quantify and measure the benefits that taxpayers receive (use) from services provided by the government. For example, the question arises as to what scale should be used to measure taxpayers' benefits for social infrastructure such as national security, education, and maintenance of law and order provided by the government. Furthermore, the overhead costs incurred by the government to provide services and benefits are indivisible, and apportionment of the costs is not possible.

This may simply indicate that people are always motivated to pay taxes to the state to maintain the prosperity of the community. However, this theory can be practically applied only in situations where the benefits can be easily and clearly understood by the beneficiaries. This can be applied, for example, to road taxes levied on car owners. The principles of the welfare approach can also be applied to employees enrolled in social security programs. Therefore, this principle can only provide a limited solution to problems of justice and fairness in the field of taxation.

According to this principle, tax liability should be distributed among different people so that the cost of the benefit for each individual who pays the tax is equal. This method aims to reduce overall population loss. It means that if many people pay enough taxes, their marginal utility loss should be equal, since the total utility loss of society is minimal. Thus, the principle of equal distribution considers the issue of dividing the tax liability from the perspective of the total benefit of society.

The causal principle of social philosophy states that the total loss caused by taxes to the people should be minimal. Thus, the principle of equal distribution advocates a highly progressive tax structure. This principle of taxation was proposed by scholars such as Edgeworth, Musgrave, and Pigout, who consider it to be the crucial principle of taxation. Edgeworth, the proponent of this principle, states that the first principle of

taxation is the minimum levy: the lower the cumulative tax, the better the distribution of tax liability within the community.

Petroleum Profit Tax (PPT) and Foreign Direct Investment (FDI) are central components of Nigeria's oil and gas industry, playing a key role in the country's economic growth and shaping global energy integration (Kiabel and Nwokah, 2009). Petroleum Profit Tax (PPT) is a tax levied on profits from petroleum operations in Nigeria. PPT is governed by the Petroleum Profit Tax Act and is an important source of revenue for the Nigerian government. Tax rates vary depending on the type of activity and contract. Revenues generated by PPT flow into national development initiatives, infrastructure projects and social programs. Foreign direct investment (FDI) in Nigeria's oil sector involves investment by international companies in exploration, production and refining activities. FDI brings advanced technology, expertise and capital to the industry, stimulating growth and development. Nigeria's vast oil reserves and strategic position in the global energy market make it an attractive destination for foreign direct investment in the oil sector. The relationship between PPT and FDI is complex. A stable and transparent PPT regime can increase investor confidence and attract FDI (Osuka et al.). (2018).

However, according to Onu (2012), an unfavourable tax structure may deter foreign investors. Finding the right balance between generating revenue through PPT and creating a conducive environment for foreign direct investment is important for the sustainable growth of the industry. The administration of PPT and foreign direct investment in Nigeria has been met with mixed successes and challenges. The government is seeking to improve the transparency and efficiency of tax administration through reforms. Efforts to facilitate ease of doing business and promote local content have also proven noteworthy in attracting foreign direct investment. Challenges such as oil price volatility, regulatory uncertainty, and security concerns have impacted foreign direct investment in the oil sector (Ekpung and Wilfred (2014)). Moreover, it is a balancing act to maintain the competitiveness of PPT policies while maximizing returns. Oil Benefits According to Essoh (2011), a well-structured PPT system

contributes to government revenues while foreign direct investment can bring in technology and capital for the growth of the sector. Finding the right balance between these two elements is key to ensuring the prosperity and sustainability of Nigeria's oil industry.

Investment is the acquisition of assets with the purpose of generating future income or increasing value (Chen, 2018). Investments made abroad are said to be "foreign". Such investments may be direct or indirect. Direct investment is a type of foreign investment in which the investor has significant influence over the management of the foreign investment destination. Thus, foreign direct investment (FDI) is defined as the acquisition of financial and/or physical assets across borders by a foreign individual or government over which the investor has a degree of control. These foreign direct investors may be individuals, corporations, or governments (Odiase, 2006). Foreign direct investment refers to investment in the form of an individual or company establishing a business or acquiring business assets in a country other than the investor's country of origin (John, 2016). Foreign investments are mainly from transition and developing countries, with the expectation that these investments will add value to the country through economic growth, technology transfer, capital formation, and improved human capital development that can be achieved through education, training, and improved management skills (Buckley et al., 2002). Similarly, the Financial Times Lexicon defines FDI as an investment that gives a controlling ownership of an enterprise based in a country other than the investor's country (lexicon.ft.com). These definitions imply that FDI is defined by foreign controlling ownership, which includes the external inflow of financial, human, and real resources into a country from outside (Olaniyi et al., 2018). Ndagi (2016) clarifies that foreign direct investment occurs when a foreign investor acquires at least 10% of the shares and voting rights of a foreign enterprise. This point brings into focus the issue of ownership control. A minimum of 10% stake is considered mandatory, giving the foreign investor permanent management rights over the investment. The importance of FDI is a key economic issue as through FDI capital, technology, and other managerial know-how can be obtained from abroad. It

is true that FDI is motivated by various reasons. These reasons could include higher average profits, markets and resources, development of new resources, or tax benefits (Berkeley, 2019; Essays, 2018). Countries are in constant competition for foreign direct investment, and the level of investment depends on tax policies such as corporate tax cuts, tax credits, accelerated depreciation, investment tax credits, low tax on export earnings, and other income incentives (Kersan-Sukavić and Mirković, 2015).

3. Methodology

This section describes the theory underlying this study. The theory underlying this study is the theory of tax competition. Proposed by Oates in 1972, this theory argues that governments intentionally reduce economic burdens to encourage the inflow of valuable resources and reduce the outflow of productive resources. Thus, Kiburi et al. (2017) suggested that tax competition theory could be used to understand government efforts to reduce economic burdens in order to attract more foreign investment, such as skilled human capital and financial investment. Tax competition theory refers to the concept that countries strategically reduce tax rates to attract foreign business and investment, with the aim of promoting economic growth and competitiveness. This practice often involves a race to the bottom as countries try to outdo each other with more favorable tax environments. The theory is based on the idea that lower taxes will encourage foreign direct investment (FDI), which can lead to job creation, technology transfer, and economic development. As a developing country, Nigeria has been actively participating in the tax race to attract FDI. The Nigerian government has undertaken various strategies to encourage foreign companies to invest in the country. Nigeria hopes to become more attractive to foreign investors through tax incentives such as reduced corporate tax rates, tax exemptions, and tax holidays. These measures are intended to stimulate economic growth, create jobs, and encourage the transfer of technological know-how. However, the effectiveness of tax competition and its impact on foreign direct investment in Nigeria is debatable. While lowering tax rates may indeed

attract foreign investors, the sustainability of such a strategy is questionable. Heavy reliance on tax incentives may lead to reduced government revenues, affecting public services and infrastructure development. Moreover, the benefits of foreign direct investment may not necessarily trickle down to the entire economy as they may be concentrated in certain sectors or regions while others remain untouched.

This section reviews some selected empirical studies. Olaniyi et al. (2018) investigated the impact of certain tax-based policy incentives (corporate tax incentives, petroleum profits tax incentives, VAT incentives, customs and excise tax incentives) on foreign direct investment inflows into Nigeria. The study was conducted over a period of 23 years (1994-2016). Secondary data from the CBN database was analyzed using multiple regression and correlation techniques. The results of the study showed that all incentives studied have a significant impact on foreign direct investment except for corporate tax incentives and petroleum profits tax incentives. It was concluded that tax incentive policies play a significant role in attracting foreign direct investment.

Tapan et al. (2018) conducted a study that focused on the impact of tax incentives on foreign direct investment in the Nigerian oil industry. The tax incentives were investment tax allowance, non-productive rent, and capital allowance. Secondary data was collected and used in the study. The results of the regression analysis conducted indicated that tax incentives have a significant impact on foreign direct investment in Nigeria. It was therefore recommended that effective implementation of these incentives is necessary to ensure maximum returns to investors.

Amuka and Ezeudeka (2017) investigated whether the introduction of tax incentive policies would result in significant changes in the pattern of FDI flows in the non-oil sector in Nigeria. Corporate tax and investment allowance were considered as tax incentives. Secondary data was used for the study. Ordinary least squares econometric analysis was used for data analysis. The results of the study showed that the introduction of tax incentive policies would result in changes in the pattern of FDI flows

in the sector. This suggests that tax incentives can be used as a real tool to attract foreign direct investment in the non-oil sector.

Kibli et al. (2017) investigated whether tax incentive policies have a significant impact on foreign direct investment inflows to the non-oil sector. They used a multiple regression model, which was transformed into a log-log model in the analysis. The regime change model helped to evaluate the effectiveness of the policies introduced at the end of 1999. Both corporate taxes and investment reserves appeared with the correct sign. The results indicated that tax incentive policies influence foreign investment flows to the non-oil sector and that a country's tax incentives could help revitalize the sluggish non-oil sector.

Kwaji and Dabari (2017) investigated the impact of foreign direct investment on the manufacturing industry in Nigeria: a time series analysis. Using least squares, they found that foreign direct investment in the sector contributed to improved production of local manufacturing firms, targeting not only goods that meet the demand of the local market but also the expansion of export markets. This study only examined FDI in the manufacturing sector without considering the tax impact, which is addressed in this study. Akinwunmi et al. (2017) investigated the impact of tax multiplicity on foreign direct investment in the Nigerian tax environment. They used an ex-post survey design to examine the impact of taxes such as corporate tax, education tax, VAT, customs duty, excise duty and inflation on foreign direct investment from 1996 to 2015. The data collected was analyzed using multiple regression and found that there is an inverse correlation between multiple taxes and foreign direct investment (FDI) in Nigeria. This means that the higher the taxes, the lower the FDI inflows into the country. However, they noted that the existence of multiple taxes discourages foreigners from investing.

The researcher will adopt an ex-post facto research design as secondary data is required. The adaptation of this research design aims to allow the researcher to examine the relationship between the variables of the study as the facts (data) used are already in existence. Specification of Econometric Model This study is an

adaptation of the econometric model previously used by Saidu (2015) who empirically investigated the relationship between corporate taxation and FDI in Nigeria from 1970 to 2013. Hence, the model for this study is specified as follows: The researcher will adopt an ex-post facto research design as secondary data is required as secondary data is required. The adaptation of the econometric model previously used by Saidu (2015) who empirically investigated the relationship between corporate taxation and FDI in Nigeria from 1970 to 2013. Thus, the model for this study is specified as follows:

$$FDI = f(PPT) \quad \text{Model (3.1)}$$

Where:

FDI = Foreign Direct Investment

PPT = Petroleum Profit Tax

From the above specified model, the econometric model for this research would be specified thus:

$$FDI = \beta_0 + \beta_1 PPT + \mu \quad \text{Model (3.2)}$$

Where

μ - Stochastic variable

f - Functional notation

4. Results and Discussion

The descriptive statistics presented in Table 1 show that the mean of PPT is 5,335,576 million naira while FDI is 287 billion naira. Note that the means represent the average value of each data series in the model. The table also shows that all variables are right skewed. Kurtosis measures the peak or flatness of a series' distribution. A normal distribution has a kurtosis of 3. Values greater than 3 mean that the distribution is peaked or leptokurtic compared to the normal distribution. Conversely, values less than 3 indicate that the distribution is flat or sparse compared to the normal distribution. Table 1 also shows that the kurtosis values of PPT are greater than 3, which means

that they are peaked or sparse. On the other hand, the kurtosis values of FDI are less than 3, which means that they are flat or sparse. Jarque-Bera (JB) tests whether a series is normally distributed or not. The test statistic measures the difference between the skewness and curvature of a series and that of a normal distribution. The JB statistic rejects the null hypothesis of a normal distribution at a 5% significance level. From the analysis results shown in Table 1, the probability value of PPT is less than 0.05 while the probability value of FDI is greater than 0.05%. We conclude that PPT is normally distributed while FDI is not. The number of observations, 41, represents the time period or scope of this study (41 years). Although these skewness and curvature indicate deviations from normal distribution, these points are not strong enough to question the quality of the data set for the analysis in question.

Table 1: Descriptive Statistics

	PPT	FDI
Mean	5335576.	2.87E+09
Median	639200.0	1.87E+09
Maximum	32010000	8.84E+09
Minimum	3746.900	73400000
Std. Dev.	10003489	2.58E+09
Skewness	1.760485	0.799060
Kurtosis	4.380106	2.513335
Jarque-Bera	24.43245	4.767673
Probability	0.000005	0.092196
Sum	2.19E+08	1.18E+11
Sum Sq. Dev.	4.00E+15	2.66E+20
Observations	41	41

Source: Researcher's Computation (2023)

The results of the Fully Modified Least Squares (FMOLS) method shown in the table above indicate that the explanatory variables have a negative impact on the dependent variable, i.e., the independent variables in the model had a negative impact on the dependent variable. The results also showed that a one-period increase in oil profit tax units would result in a one-period decrease in foreign direct investment by 87.1 units.

Table II: Inferential Result. Co-integration Regression Results (FDI)

Dependent Variable: FDI				
Method: Fully Modified Least Squares (FMOLS)				
Date: 08/01/23 Time: 09:16				
Sample (adjusted): 1986 2021				
Included observations: 36 after adjustments				
Cointegrating equation deterministics: C				
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
	nt			
FDI(-1)	0.670866	0.096943	6.920206	0.0000
PPT(-1)	-87.06864	29.25614	-2.976081	0.0078
C	1.02E+08	1.06E+08	0.958732	0.3497
R-squared	0.945414	Mean dependent var	3.24E+09	
Adjusted R-squared	0.899447	S.D. dependent var	2.53E+09	
S.E. of regression	8.04E+08	Sum squared resid	1.23E+19	
Long-run variance	1.36E+17			

Source: Researcher's Computation (2023)

Closer observation of the results showed that the R-squared and adjusted R-squared were around 0.95 and 0.90 respectively, which means that the explanatory variables accounted for around 95% of the variation in the dependent variable. In other words, about 95% of the variation in FDI can be explained by the independent variables, while the remaining 5% can be due to variables not captured in the model (random variables).

Table III: Auto-correlation Test

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*	
*** .	*** .	1	-0.345	-0.345	4.6636	0.031
. .	. * .	2	0.028	-0.104	4.6945	0.096
** .	** .	3	-0.211	-0.272	6.5424	0.088
. * .	. .	4	0.164	-0.013	7.6922	0.104
. .	. .	5	-0.001	0.032	7.6922	0.174
. .	. .	6	0.014	0.001	7.7011	0.261
. * .	. * .	7	-0.107	-0.071	8.2380	0.312
. * .	** .	8	-0.135	-0.241	9.1290	0.332
. * .	. * .	9	0.084	-0.105	9.4840	0.394
. * .	** .	10	-0.116	-0.253	10.190	0.424
. * .	. * .	11	0.135	-0.079	11.184	0.428
. .	. * .	12	0.044	0.112	11.295	0.504
. * .	. * .	13	-0.132	-0.148	12.335	0.500
. .	. * .	14	-0.058	-0.178	12.547	0.562
. .	** .	15	0.012	-0.212	12.557	0.636
. * .	. .	16	0.207	-0.026	15.480	0.490

Source: Researcher's Computation (2023)

This test is performed to further check for autocorrelation. The results of the Correlogram Q Statistic in Table 3 show that there is no autocorrelation in the variables. The Correlogram Q Statistic table shows that all the p-values are >5%, hence the conclusion is that there is no autocorrelation in the model. Hypothesis Testing: The researcher tested the four hypotheses that were previously stated in null form.

The purpose of this section is to draw conclusions from the results of data analysis and hypothesis testing. Decision rule: The researcher used a critical value such as p-value as the basis for accepting or rejecting the null hypothesis. If the calculated critical p-value is below the 5% level of significance, the variable was deemed significant and rejected.

Table IV: Testing the first hypothesis

H₀: There is no significant relationship between profit tax on oil and the amount of foreign direct investment in Nigeria.

Variables	Coefficient	T-Statistic	P-Value
Ppt	-87.06864	-2.976081	0.0078

Source: Researcher's Computation (2023)

5. Conclusion

Hypothesis testing (H₀) revealed that the p-value of PPT is below the significance level of 0.05 with a probability value of 0.0078. Hence, the researcher rejects the null hypothesis. The results indicate that Petroleum Profit Tax has a significant relationship with Foreign Direct Investment in Nigeria. Conclusion This study investigated the effect of Petroleum Profit Tax on Foreign Direct Investment in Nigeria. The study used Petroleum Profit Tax as an independent variable to test its effect on the dependent variable, Foreign Direct Investment. The fully corrected ordinary least squares results showed that the petroleum profits tax has a significant negative impact on foreign direct investment in Nigeria. This means that if the petroleum tax rate increases, the amount of foreign direct investment in Nigeria will inevitably decrease. If the Nigerian government wants to improve foreign direct investment through taxation, it should review its taxation

policy. In light of the above, the study concludes that taxation has had a significant impact on foreign direct investment in Nigeria during the study period.

Based on the findings discussed in the above paragraphs, the Nigerian government and policymakers should consider the following recommendations to increase the amount of foreign direct investment in Nigeria.

Since the petroleum profits tax has a significant negative relationship with foreign direct investment in Nigeria, it is recommended that the government review the tax rate on petroleum-related products to encourage foreign companies to come and invest in Nigeria's downstream sector.

References

- Aderinton, A. and Abdullahi, S.H. (2007). *Comprehensive Certificate Economics*, (3rd ed.). Ibadan: University Press Plc.
- Akinwunmi, A. J., Olotu, A. E., and Adegbe, F. F. (2017). Multiplicity of Taxes and Foreign Direct Investment: A Relational Analysis of Nigerian Environment. *Social Sciences*, 6(4), 91 – 101.
- Alfaro, L. Areedam C. Sebnem K. O. and Selin S. (2001). "FDI and Economic Growth: The Role of Financial Markets". Working paper 01-083. Harvard Business School.
- Amuka, J., and Ezeudeka, F. (2017). Tax Incentives and the Flow of Foreign Direct Investment to Non-oil Sector: Empirical. *Asian Journal of Social Sciences and Management Studies*, 4(1), 57-64.
- Andre, F. (2015). Tax Effects in Portugal. Lisbon School of Economics and Management
- Appah, E. (2010). The Problems of Tax Planning and Administration in Nigeria: The Federal and State Government Experience. *International Journal of Lab. Organ Psychology*, 4(1-2): 1-14.
- Ariyo, A.(1997). Productivity of the Nigeria including capital Gains Tax and Capital Transfer Tax. Lagos: Jaja Publishing Ltd.
- Asada, D. (2005). The Administration of Personal Income Tax in Nigeria: Some Problem Areas. Working paper, University of Jos.
- Azubuike, J.U.B. (2009). Challenges of Tax Authorities, Tax Payers in the Management of Tax Reform Process. *Journal of Nigeria Accountant*, 42 (2), 36-42.
- Babatunde, S. A. (2012). The Impact of Tax Incentives on Foreign Direct Investment in the Oil and Gas Sector in Nigeria. *IOSR Journal of Business and Management (IOSR-JBM)*, 6(1), 1-15.

- Berkeley. (2019). Foreign Direct Investment and Applicable Tax Incentives. Retrieved from www.berkeleylegal.com.ng/2018/03/16/foreign-direct-investment-and-applicable-tax-incentives/. [Accessed 9th April, 2019].
- Bhartia, H.L. (2009). Public finance, (14th ed.). New Delhi: Vikas Publishing House PVT Ltd.
- Bhinda, N. Griffith-Jones, S. and Martin, M. (1999). Private Capital Flows to Africa: Government in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 5(2), 1– 11.
- Buckley, P. J., Clegg, J., and Wang, C. (2002). The Impact of Inward FDI on the Performance of Chinese Manufacturing Firms. *Journal of International Business Studies*, 33(4) 637 – 655.
- Camara, O. B. (2014). Effect of Corporate Tax on Sector Specific Foreign Direct Investment in Ghana. Munich Personal RePEc Archive. Retrieved from https://mpra.ub.unimuenchen.de/58454/1/MPRA_paper_58454.pdf
- Campos, N. (2002). “Foreign Direct Investment as Technology Transferred: Some Evidence from the Transition Economies”. The Manchester School Paper. 70(3)398 -412.
- Central Bank of Nigeria (2019). *CBN Annual Report and Statistical Bulletin for the year Ended 31st December 2019*.
- Chen, J. (2018). Investment. Retrieved from <https://www.investopedia.com/terms/i/investment.asp>. [Accessed, 9th April, 2019].
- Efanga, U. O, Umoh, E. A and Etim, R. S. (2020) Tax Revenue and Economic Development in Nigeria, an Auto-regressive Distributed Lag (ARDL) Model. *Journal of Accounting and Financial Management*, 6(1), 95-10.
- Effiok, S.O., Tapang, A. T. and Eton, O.E. (2013). The Impact of Tax Policy and Incentives on Foreign Direct Investment (FDI) and Economic Growth: Evident from Export Processing Zones (EPZs) in Nigeria. *European Journal of Commerce and Management Research*, 2(9), 191-196.
- Ekpung, G. E., and Wilfred, W. O. (2014). The Impact of Taxation on Investment and Economic Development in Nigeria. *Academic Journal of Interdisciplinary Studies*, 3(4), 209-218.
- Eshghi, G., and Eshghi, A. (2016). Corporate Income Tax as a Determinant of Foreign Direct Investment in Central and Eastern Europe. *European Journal of Business and Social Sciences*, 4(11), 111 – 123.
- Essays, U. K. (2018). Theories of Foreign Direct Investment (FDI). Retrieved from <https://www.ukessays.com/essays/economics/various-theories-concerning-foreign>. [Accessed 24th March, 2019].
- ICAN (2009), Taxation Study Pack. V/I Publisher. Retrieved from <http://www.padocss.com/cat-ican-study-pack-for-foundation-of-personal-income-tax-in-Nigeria>.
- Institute for Fiscal Studies (IFS). (2018). Review of Corporate Tax Incentives for Investment in low-and middle-income countries (pp. 1-48). London: The Institute for Fiscal Studies.

- Jaspersen, F. Z., A. I-I. Aylward and A. D. Knox. (2000). "The Effect of Risk on Private Investment: Africa compared with other areas". In P. Collier and C. Pattillo, eds., *Investment and risk in Africa*. New York: St Martin's Press.
- John, E. I. (2016). Effect of Foreign Direct Investment on Economic Growth in Nigeria. *European Business and Management*, 2(2), 40 – 46.
- Kersan-Skabic, I., and Mirkovic, M. (2015). The Importance of Corporate Taxation for FDI Attractiveness of Southeast European Countries, *Panoeconomicus*, 62(1), 105 – 122.
- Kiabel, B.D., and Nwokah, N.G (2009). Boosting Revenue Generation by State Governments in Nigeria: The tax Consultants' Option Revisited. *European Journal of Social Sciences*, 8(4), pp. 532-539.
- Kiburi, W. W., Mirie, M. W., Okiro, K. O., and Ruigu, G. M. (2017). The Relationship between Tax Burden and Foreign Direct Investment Inflows: A Review of Empirical Literature. *European Journal of Accounting, Auditing and Finance Research*, 5(5), 67 – 77.
- Koojaroenprasit, S (2012). The Impact of Foreign Direct Investment on Economic Growth: A Case of South Korea. *International Journal of Business and Social Science*, 3(21).
- Kubicova, J. (2013). The Role of Corporate Income Tax in Foreign Direct Investment Inflows into the 'Old' and 'New' U. Member States. Research Project VEGA, 1(13), 222-233.
- Kwaji, S. F., and Dabari, I. J. (2017). Empirical Analysis of Tax Revenue Collection by the Federal Perception and Rcali. The Hague: FONDAD.
- Kyari, K. A. (2020). The Impact of Petroleum Tax Incentives on Foreign Direct Investment Inflow: Evidence from Nigeria. *International Journal of Energy Economics and Policy*, 10(4), 516-524.
- Lehmann, A. (1999). "Country Risks and the Investment Activity of US Multinationals in Developing Countries". International Monetary Fund working paper.
- Margareta, D., and Åsa, H. (2012). Taxation of Income and Economic Growth: An Empirical Analysis of 25 Rich OECD Countries. *Department of Economics Lund University*, 6, 1-31.
- Musgrave, R.A. and Musgrave, P.B. (1989). *Public Finance in Theory and Practice*. Singapore: McGraw-Hill International Edition.12
- Musyoka, K. (2012). The Relationship between Tax Incentives and Foreign Direct Investment in Kenya, University of Nairobi, Kenya.
- Ndagi, M. (2016). An Appraisal of Taxation and its Legal Effects on Foreign Direct Investment in Nigeria. A Ph.D Thesis Submitted to School of Post Graduate Studies, Ahmadu Bello University, Zaria.
- Ndajiwo, M. (2018). Are Tax Incentives in Nigeria Attracting Investment or Giving Away Revenue? Retrieved from <https://www.taxjustice.net/2018/08>. [Accessed, 7th March, 2019].
- Ngowi, H. P. (2001). Attracting New Foreign Direct Investments to Tanzania: *Tanzania Journal*: 1(2): 23-39.

- Nistor, I., and Paun, D. (2013). Taxation and its Effects on Foreign Direct Investments – The Case of Romania. *Nanki O Finansach Financial Sciences*, 3(16), 37 – 47.
- Nwazeaku, N.C. (2005). Taxation in Nigeria: Principles and Practice. Owerri: Springfield Publisher. (Accessed 1/3/2013).
- Oats, W., E. (1972). Fiscal Federalism. Harcourt Brace Jovanovich, New York.
- Oboh, T. (2021). Direct Tax and Foreign Direct Investment. *Accounting and Taxation Review*, 5(1): 1-14.
- Odiase, O. A. (2006). An Appraisal of the Legal and Institutional Regime for Foreign Investment Promotion and Protection in Nigeria. *FIPGW Journal, NIALS, Lagos*.
- Odusola, A. (2006). Tax Policy Reforms in Nigeria. World Institute for *Development Economics and Research, Research Paper*. <http://www.widerunu.edu>.
- Odusola, A. (2006). Tax Policy Reforms in Nigeria: Research Paper. United Nations University-World Institute for Development Economic Research.
- Okpara, G.C. (2010). Productivity and Effect of Taxation on Economic Growth in Nigeria. *Journal of Business and Economic Statistics*, 4(6).
- Olaleye, M. O., Riro, G. K., and Memba, F. S. (2016). Effect of Reduced Company Income Tax Incentives on Foreign Direct Investment in listed Nigerian Manufacturing Companies. *European Journal of Business, Economics and Accountancy*, 4(1), 39-54.
- Olaniyi, T. A., Ajayi, R. O., and Oyedokun, G. E. (2018). Tax Policy Incentives and Foreign Direct Investment in Nigeria. *Fountain University Osogbo Journal of Management*, 3(3), 59-71.
- Olokoyo, F. O. (2012). Foreign Direct Investment and Economic Growth: A Case Study of Nigeria. *BVIMSR's Journal of Management Research* 4(1)2012.
- Onu, A. J. C (2012). Impact of Foreign Direct Investment on Economic Growth in Nigeria. *Interdisciplinary Journal of Contemporary Research in Business*, 4(5), pp. 64-75.
- Onwuchekwa, J. C. and Aruwa, A. S. (2014). Value Added Tax and Economic Growth in Nigeria. *European Journal of Accounting Auditing and Finance Research*, Vol.2 (8), 62 – 69.
- Osuka, B. O.; Otiwu, K. C. and Makwe, E. U. (2018). Foreign Direct Investments in Selected Service Sectors and Economic Growth in Nigeria (1990 - 2016). *International Conference on Managing Nigerian Economy*. Organized by the Faculty of Business Administration, Imo State University, Owerri, Nigeria.
- Peters, G. T., and Kiabel, B. D. (2015). Tax Incentives and Foreign Direct Investment in Nigeria. *IOSR Journal of Economics and Finance*, 6(5), 10 – 20.
- Pfefferman, G. P. and Madarassy, A., (1992). Trends in Private Investment in Developing Countries, 1992 Edition, International Finance Corporation, Discussion Paper 14, Washington D. C.
- Philip, A.O. (1991) Formulation of Effective Tax Policy. Paper presented at a National Workshop on the Nigeria Tax System and Administration in Nigeria, Lagos, 15-17 May.
- Pigato, M. (2001). "The Foreign Direct Investment Environment in Africa". Africa Region working paper 15. The World Bank, Washington, D.C.

- PwC. (2018). Nigeria Corporate Tax Credits and Incentives. Retrieved from www.taxsummaries.pwc.com/ID/Nigeria-Corporate-Tax-credits-and-incentives. [Accessed 31st March, 2019].
- Rapahel, S. E., Jeremiah, A. S. and Jeremiah, O. O. (2019). Attracting Foreign Direct Investment (FDI) in Nigeria through Effective Tax Policy Incentives. *International Journal of Applied Economics, Finance and Accounting*, 4(2), 36-44.
- Raudonen, S. (2016). Impact of Taxation on FDI Flows into European Union Countries: Empirical Evidence from a Gravity Approach. *Global Business and Economics Review*, 18(3-4), 402-419. <http://doi:10.1504/gber.2016.076252>
- Sachs, J. and Sievers, S. (1998). Foreign Direct Investment in Africa. Africa Competitiveness Report 1998. Geneva: World Economic Forum.
- Saidu, A. S. (2015). Corporate Taxation and Foreign Direct Investment in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 3(8), 17 – 24.
- Schneider, F. and B. S. Frey. (1985). "Economic and Political Determinants of Foreign Direct Investment". *World Development*, 13(2) 161-75.
- Sunday, O. E., Arzizeh, T. T. and Okon, E. E. (2013). The Impact of Tax Policy and Incentives on Foreign Direct Investment (FDI) and Economic Growth: Evident from Export Processing Zones (EPZs) in Nigeria. *European Journal of Commerce and Management Research (EJCMR)*, 2(9), 191-196.
- Tapang, A. T., Onodi, B. E., and Amaraihu, A. H. (2018). Effect of Tax Incentives on Foreign Direct Investment in Nigeria. *IIARD International Journal of Economics and Business Management*, 4(7), 30-39.
- Tsai, P. (1994). "Determinants of Foreign Direct Investment and its Impact on Economic Growth". *Journal of Economic Development*, (19):137-63.
- Ugwu, J. I. (2018). Tax Incentives and Foreign Direct Investment (FDI): Implication for Export Promotion in Nigeria, Ghana and South Africa, Post IFRS Adoption. *International Journal in Management and Social Science*, 6(9), 31-52.
- UNCTAD. (1999). World Investment Report 1999: Foreign Direct Investment and the Challenge of Development. New York and Geneva: United Nations Conference on Trade and Development.
- UNCTAD. (2017). Foreign Direct Investment in Africa: Performance and Potential. New York and Geneva: United Nations Conference on Trade and Development.
- Wheeler, D. and A. Mody (1992). "International Investment Location Decisions; The Case of U. S. Firms", *Journal of international economics* (33), 57- 76.
- World Bank. (2019). Foreign Direct Investment Net Inflows (% of GDP). Retrieved from <https://data.worldbank.org/indicator/bx.kit.dinv.wd.gd.zs>. [Accessed, 26th March, 2019].

Session – “Digital Transformation, Accounting, and Innovation in Business Management”

Chair: António Monteiro Oliveira

Does professional accounting management mitigate Financial Constraints? Analysis for Small Businesses in Spain

Marcos Álvarez-Espino. Ph.D. fellow. Department of Financial Economics and Accounting. Universidade de Santiago de Compostela, Spain. marcos.alvarez.espino@usc.es

Sara Fernández-López. Associate Professor. Department of Financial Economics and Accounting. Universidade de Santiago de Compostela-ECOBAS, Spain. sara.fernandez.lopez@usc.es

Lucía Rey-Ares. Assistant professor. Department of Financial Economics and Accounting. Universidade de Santiago de Compostela, Spain. lucia.rey.ares@usc.es

Abstract

Purpose: The survival of small businesses (SB) is often threatened by limited access to external financing Adomako et al., (2016). One possible explanation may be the inability to provide sufficient information to banks for a proper assessment of their risk levels, Stiglitz and Weiss, (1981). In this context, managers with professionalized accounting management would have the ability to prepare relevant information Atkinson, (2017), reducing supervision costs for financial institutions Audretsch, (2009) and enhancing their business development Wise, (2013). This research explores the relationship between professionalized accounting management and the constraints on access to bank credit experienced by SB in Spain.

Methodology: The used sample contains information from 1,120 SB and their owners-managers extracted from the first edition of the Survey of Financial Competencies in SB operating in Spain. This information was collected in 2021 by the Bank of Spain. To

measure constraints on access to bank credit we constructed an ordinal variable (from 1 minus to 6 plus difficulties in obtaining loans), following Bankowska et al. (2020). The independent variable of study, professionalized accounting management, is measured through a continuous index that considers, following Mintzberg (1993), the elaboration of budgets, financial plans and strategies. Ordered probit regressions are used to relate professionalized accounting management to the dependent variable and to compare this relationship, specifically, for micro vs. SB.

Results: The estimated models point to a negative relationship between professionalized accounting management and financial constraints. In particular, the results are evident for those companies that develop financial plans. Training owners-managers in the development of financial plans could mitigate constraints on access to bank credit by their SB. In the SB with less than 10 employees (microenterprises), the above relationships are not evident.

Originality: Studies relating financial constraints on access to bank credit in SB with the professionalized accounting management of their owners-managers have been mainly developed during the last five years (Graña-Álvarez et al., 2024; Molina-García et al., 2022). This paper extends the literature by being the first to relate financial constraints and professionalized accounting management in SB with different numbers of employees.

Keywords: *Financial constraints; Professional accounting management; Small businesses; Spain.*

Acknowledgements: Marcos Álvarez-Espino appreciates the financial support of the Ministry of Universities of Spain through the FPU program (*Ayudas para la Formación del Profesorado Universitario*) [FPU21/03287].

References

- Adomako, S., Danso, A. & Ofori Damoah, J. (2016). The moderating influence of financial literacy on the relationship between access to finance and firm growth in Ghana. *Venture Capital*, 18(1). <https://doi.org/10.1080/13691066.2015.1079952>.
- Atkinson, A. (2017). Financial education for MSMEs and potential entrepreneurs (OECD Working Papers on Finance, Insurance and Private Pensions, Nº 43).
- Audretsch, D.B. (2009). The entrepreneurial society. *The Journal of Technology Transfer*, 34, 245-254. <https://doi.org/10.1007/s10961-008-9101-3>.

- Bankowska, K., Ferrando, A. & García, J.A. (2020). Access to finance for small and medium-sized enterprises since the financial crisis: evidence from survey data. *ECB Economic Bulletin*, 4, 104-125.
- Graña-Álvarez, R., López-Valeiras, E., González-Loureiro, M. & Coronado, F. (2024). Financial literacy in SMEs: A systematic literature review and a framework for further inquiry. *Journal of Small Business Management*, 62(1), 331-380. <https://doi.org/10.1080/00472778.2022.2051176>.
- Mintzberg, H. (1993). *The rise and fall of strategic planning*. London: Prentice Hall.
- Molina-García, A., Diéguez-Soto, J., Galache-Laza, M.T. & Campos-Valenzuela, M. (2022). Financial literacy in SMEs: a bibliometric analysis and a systematic literature review of an emerging research field. *Review of Managerial Science*, 17, 787-826. <https://doi.org/10.1007/s11846-022-00556-2>.
- Stiglitz, J.E. & Weiss, A. (1981). Credit rationing in Markets with Imperfect Information. *American Economic Review*, 71, pp. 343-410. <https://www.jstor.org/stable/1802787>.
- Wise, S. (2013). The impact of financial literacy on new venture survival. *International Journal of Business and Management*, 8(23), 30. <https://doi.org/10.5539/ijbm.v8n23p30>.

Strategic Implications for Members of Fruit and Vegetable Producer Organisations in the Province of Huelva from the Perspective of the Institutional Theory of Organisations

Francisco Riquel-Ligero. University of Huelva, Spain. francisco.riquel@dem.uhu.es

Elena García-de-Soto-Camacho. University of Huelva, Spain. elena.gardeso@dem.uhu.es

Rosa M^a Vaca-Acosta. University of Huelva, Spain. rosa.maria@dem.uhu.es

Abstract

Purpose: The boom experienced in recent years in the cultivation of berries, the current driving force behind the economic development of many regions, has led to new forms of producer organisation, giving rise to numerous Fruit and Vegetable Producer Organisations created under the instruments designed by the Common Agricultural Policy. The main objectives of these organisations are the joint marketing of their members' crops, as well as the management of Operational Programmes, which can be decisive for their competitiveness. In this context, the main objective of this study is to analyse the impact that Institutional Theory has on the design of strategies in this type of organisations, studying the implications of the institutional context and especially the so-called coercive pressure that comes from a regulatory system such as the European Union and the transposition of its regulations to Spain.

Methodology: We propose a model that relates institutional isomorphic pressures with decision-making and organisational change, composed of 5 constructs and using 33 indicators for their measurement. In order to test the hypotheses proposed, we carried out quantitative research by means of an ad hoc structured survey of a population universe made up of producer members in the province of Huelva, the second province in Andalusia in terms of the number of recognised Fruit and Vegetable Producer Organisations, with 26, grouping a total of 1,617 producers, obtaining a sample of 128 producers.

The model was tested by applying the PLS technique of partial least squares or analysis of variance, using the Visual PLS programme.

Results: In view of the results obtained with the model, it can be affirmed that the strategic decision making of the producer partners that are part of a Fruit and Vegetable Producers' Organisation is mainly influenced by the legal context in which the production activities are developed, that is, the strategy would be at the service of the compliance with the legal rules that regulate both the recognition, design and justification of the aid of the operational programmes.

Secondly, the design of strategic decisions of these partners finds an important source of inspiration in the experiences of other partners that are considered to be successful, involving the imitation of their business models. We can consider in this typology of isomorphism that decisions on the type of crop, cultivation techniques, varieties or formats to be marketed are strongly influenced by this typology of institutional pressure, generating business models and farms with a high degree of similarity. Not surprisingly, this mimetic isomorphism is to a certain extent fed by the legal obligation to concentrate supply, knowledge of production and common marketing.

In relation to the normative isomorphism, it has no impact on the design and strategic decision-making of the producer partners. We can find an explanation for this lack of influence in the perception that producer members may have of the policies emanating from the FVPO itself in relation to widely accepted standards in the agricultural sector as part of coercive pressures that must be complied with.

Research limitations: The main limitations of this study include the size of the sample, both in terms of the geographical and sectoral scope of the study, which limits the possible generalizations that could be obtained from the conclusions, as well as the introduction of aspects of a subjective nature by the partners who answered the questionnaire.

Originality: Fruit and Vegetable Producers' Organisations form part of a sector, the agricultural sector, in which organisational studies framed in this theory are scarce, since traditionally Institutional Theory has focused on studies of organisations in the public sphere, so the present research contributes to enriching the body of doctrine by applying Institutional Theory of Organisations to the agricultural sector, specifically in the berry subsector.

Keywords: *Institutional Theory 1; Fruit and Vegetable Producer Organisations 2; Institutional Isomorphism 3, Strategic Design 4.*

References

- Anido, D. (2015). Evaluación de las organizaciones de productores de frutas y hortalizas en el marco de la Organización Común de Mercado. El caso de la Comunidad Valenciana. Tesis Doctoral. Universidad de Valencia.
- Chin W. (1998). The partial least square approach to structural equation modelling. En: Marcoulides, G. A. (Ed.), *Modern Methods for Business Research*. Mahwah, NJ: Lawrence Erlbaum Associates, p. 295–336.
- Colom, A. y Florensa R. (2021). Cooperativismo agroalimentario y las OPFH : una panorámica mundial y la realidad actual europea y española. Cizur Menor Navarra : Thomson Reuters-Aranzadi.
- Deniz, M. y García, A. (2011). El isomorfismo mimético y las ventajas de localización como determinantes del modo de entrada. *Revista Europea de Dirección y Economía de la Empresa*. 20 (1), pp. 105-122.
- DiMaggio, P.J., y Powell W.W. (1991). *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press.
- DiMaggio, P.J., y Powell, W.W. (1983). The Iron Cage revisited: Institutional Isomorphism and Collective Rationality. *American Sociological Review*, 48, 147-160.
- Escobar, L. y Verdenbrug, H. (2011). Multinational oil companies and the adoption of sustainable development: A resource-based and institutional theory interpretation of adoption heterogeneity. *Journal of Business Ethics*, 98 (1), 39-65.
- Grob, S. y Benn, S. (2014) Conceptualising the adoption of sustainable procurement: an institutional theory perspective, *Australasian Journal of Environmental Management*, 21:1, 11-21, Retrived from doi: [10.1080/14486563.2013.878259](https://doi.org/10.1080/14486563.2013.878259).
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2016), "Testing measurement invariance of composites using partial least squares", *International Marketing Review*, in Press.
- Krajnovic, A. 2018. "Institutional theory and isomorphism: limitations in multinational companies" *Journal of Corporate Governance, Insurance and Risk Management* 5(1), 1-7.
- Perdomo, G., Murillo G. y González-Campo, C. (2019). Cambio organizacional e institucional desde las perspectivas teóricas. En: *Entramado*. Julio-Diciembre, 2019. vol. 15, no. 2, p. 46-65, Retrived from doi: <http://dx.doi.org/10.18041/1900-3803/entramado.2.549>
- Pérez, V. (2022). Responsabilidad Social Empresarial en las empresas agrícolas vista desde la Teoría Institucional. *Revista Científica, Teorías, Enfoques y Aplicaciones en las Ciencias Sociales*, (30),14, 43-54.
- Riquel-Ligero, F. y Vargas, A. (2013): Las presiones institucionales del entorno medioambiental: aplicación a los campos de golf. *Revista Europea de Dirección y Economía de la Empresa* 22 (2013) 29–38
- Sousa, H. A., Klein, L., & Voese, S. B. (2022). The impact of institutional pressures on the use and maintenance of e-commerce in brazilian micro and small enterprises (MSEs). *Revista Brasileira de Gestão de Negócios*, 24(2), p.366-382. Retrived from doi: <https://doi.org/10.7819/rbgn.v24i2.4174>

The application of the Metaverse in Health: A Systematic Review of the Literature

Mónica Veloso Huertas. Universidad Autónoma de Madrid, Spain. monica.veloso@uam.es

Anne Schmitz. Universidad Autónoma de Madrid, Spain. anne.schmitz@uam.es

Ana M. Díaz-Martín. Universidad Autónoma de Madrid, Spain. ana.diaz@uam.es

Purpose: The main objective of this work is to carry out a systematic literature review analysing the link between the metaverse and the healthcare industry: closely related to the incorporation of new technologies, it is subject to a constant technological (r)evolution and is "obligated" to attend increasingly digitized, informed, and demanding patients (Díaz-Martín, Schmitz, & Yagüe Guillén 2020). On the other hand, the metaverse represents a point of no return for many industries and sectors (DAVOS 2023). As it gains ground, it is also making its way into healthcare. Recent economic reports analysing this market and the metaverse mention annual compound growth rates of 42%, expecting to reach a market value of over 32 billion dollars by the year 2030 (Vantage Market Research, 2022). In this context, it is important to highlight the benefits that the incorporation of virtual environments into the healthcare sector entails, but also to emphasize possible challenges and difficulties. Therefore, the purpose of this work in progress is to offer relevant and updated information on the different applications of the metaverse in the healthcare sector and different medical specialties, and to encounter barriers and facilitators of use.

Methodology: To address the objectives outlined in this work in progress, a systematic literature review will be carried out following the PRISMA methodology (Preferred Reporting Items for Systematic Reviews and Meta-Analyses, Moher et al., 2015). This method allows for the systematic collection, review, and synthesis of research results on a particular topic. The methodology includes defining research questions to guide the process, data collection, and the preparation and analysis of these (Paul and Barari, 2022). This study involved a thorough review of 67 articles published in English. Articles were collected through keyword searches in Scopus, Web of Science, and PubMed.

Results: This analysis aims to identify and synthesize the applications of the metaverse, but also to understand in which specific environments of the healthcare sector they are being used to a greater or lesser extent. It is expected that the results will allow for an understanding of what barriers are hindering adoption, but also to find out what factors favour its use. Moreover, the results of the study will assist the various stakeholders involved in the digitization of the healthcare sector, both public and private, as well as companies and patients, in understanding how this technology is being used and what impact it is having. Additionally, highlighting possible barriers and facilitators of use may

be especially important for designing efficient virtual environments: this will promote acceptance and use, avoiding the possible rejection that could initially arise. As for academic implications, it is worth noting that the outcomes of this systematic review will help guide future studies by identifying gaps. Likewise, it is adding to a growing line of research and will represent pioneering work in this field.

Originality: This study adds value to the academic literature on the digitization of the healthcare sector through a systematic literature review. At a time when scientific production on the metaverse is growing at an accelerated pace, understanding, and synthesizing the existing information will help to lay the groundwork for a gradual incorporation of the metaverse into the healthcare sector. Additionally, it will contribute to improving future research on the topic, facilitate understanding, and help identify possible gaps and other knowledge deficits that may hinder the adoption of these new technologies.

Keywords: *Systematic literature review; metaverse; healthcare; PRISMA*

Acknowledgements: This study benefited from the Professorship Excellence Program in accordance with the multiyear agreement signed by the Government of Madrid and the Autonomous University of Madrid, UAM (Line #3) and the Spanish Ministry of Science and Innovation, grant number PID2020-113561RB-I00. The study was conducted under the framework of the UAM Research Group TECHNOCONS “Consumer Behavior and Technology” and DERC-UAM (Digital Economy Research Center).

References

- DAVOS. (2023). *The Metaverse Will Make Its Biggest Impact on Industry. Here's Why* | World Economic Forum.
- Díaz-Martín, A. M., A. Schmitz, and M. J. Yagüe Guillén. (2020). “Are Health E-Mavens the New Patient Influencers?” *Frontiers in Psychology* 11. doi:10.3389/fpsyg.2020.00779.
- Moher, D., Shamseer, L., Clarke, M., Gherzi, D., Liberati, A., Petticrew, M., & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews*, 4(1), 1-9.
- Paul, J. and Barari, M. (2022) ‘Meta-analysis and traditional systematic literature reviews—What, why, when, where, and how?’, *Psychology and Marketing*, 39(6), 1099–1115. doi: 10.1002/mar.21657.
- Vantage Market Research (2022). *Metaverse in Healthcare Market - Global Industry Assessment & Forecast*. Available at

<https://www.vantagemarketresearch.com/industry-report/metaverse-in-healthcare-market-1513#:~:text=The%20global%20Metaverse%20in%20Healthcare,42.70%25%20over%20the%20forecast%20period>

Motivations in Way of St. James

Rosa Maria Riveiro Conde. ISAG—European Business School, Porto, Portugal; Research Centre in Business Sciences and Tourism (CICET—FCVC), Porto, Portugal. rosa.conde@isag.pt

Ana Pinto Borges. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC); IPVC- Polytechnic Institute of Viana do Castelo and UNIAG - Applied Management Research Unit, Portugal. anaborges@isag.pt

Isabel Neira Gómez. Universidad Santiago de Compostela, Spain. isabel.neira@usc.es

Elvira Vieira. ISAG – European Business School and Research Center in Business Sciences and Tourism (CICET - FCVC), Portugal, Applied Management Research Unit (UNIAG), Instituto Politécnico de Bragança, Bragança, Portugal; IPVC—Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal. elvira.vieira@isag.pt

Abstract

Purpose: This study investigates the motivations of pilgrims on the Santiago Way, a historic pilgrimage route culminating at the cathedral of Santiago de Compostela in Spain, which attracts thousands of pilgrims from around the world. The research aims to understand the diverse reasons that drive individuals to undertake this journey. Data was collected from a questionnaire, resulting in a final sample of 185 pilgrims. Results indicate that motivations for choosing the Portuguese ways are multifaceted, encompassing, the quality of accommodation facilities, local gastronomy and good access and/or proximity to the airport. The study provides a comprehensive overview of the contemporary motivations for undertaking the Santiago Way, offering valuable insights for enhancing pilgrim support services and developing targeted tourism strategies. This research contributes to the broader understanding of modern pilgrimage and its significance in today's society.

Methodology: This study utilized a structured questionnaire to investigate the motivations of pilgrims on the Santiago Way. A sample of 185 pilgrims was surveyed, with participants recruited at various points along the route. Data collection was conducted through face-to-face interviews, allowing for a detailed and personal understanding of each pilgrim's motivations. This approach ensured a comprehensive capture of the diverse reasons for undertaking the pilgrimage, contributing to the

development of enhanced pilgrim support services and targeted tourism strategies. To analyze the motivations, a factor analysis was used.

Results: The study's findings reveal pilgrims' motivations for choose the Portuguese ways. A key motivation includes the quality of accommodation facilities, local gastronomy and good access and/or proximity to the airport. The results suggest that pilgrims' motivations are complex and multifaceted, requiring tailored support services and tourism strategies to meet their diverse needs. This research contributes to a deeper understanding of the contemporary significance of pilgrimage and informs improvements in pilgrim support and destination management.

Originality: This study stands out by providing a nuanced exploration of the motivations in pilgrims on the Santiago Way. By surveying 185 participants using structured questionnaires, the research uncovers a spectrum of motivations encompassing, the quality of accommodation facilities, local gastronomy and good access and/or proximity to the airport. These findings contribute fresh insights into contemporary pilgrimage motivations, offering practical implications for improving pilgrim support services and refining tourism strategies along the Santiago Way.

Keywords: *Motivations, Religious Tourism, Religious Motivations, Pilgrimage Motivations Santiago Way.*

Digital transformation in the management of Buenos Aires ports

Alicia Zanfrillo. *Facultad Regional Mar del Plata de la Universidad Tecnológica Nacional – Facultad de Ciencias Económicas y Sociales de la Universidad Nacional de Mar del Plata, Argentina. alicia@mdp.edu.ar*

María Susana Porris. *Facultad Regional Bahía Blanca de la Universidad Tecnológica Nacional, Argentina. msporris@frbb.utn.edu.ar*

Roberto Verna. *Facultad Regional Bahía Blanca de la Universidad Tecnológica Nacional, Argentina. rverna@frbb.utn.edu.ar*

Mauro Etcheverry. *Facultad Regional Bahía Blanca de la Universidad Tecnológica Nacional, Argentina. mauroet@frbb.utn.edu.ar*

Abstract

Purpose: Describe the adoption of technologies in port management in the towns of Mar del Plata and Bahía Blanca located in the south-southeast of the province of Buenos Aires (República Argentina) within the framework of the evolution towards smart ports.

Methodology: The research is based on a qualitative case study methodology with the application of interview and direct observation techniques and analysis of secondary sources of information.

Results: A high degree of digitalization is observed in port management through the administrative management and surveillance systems of the vehicular and maritime fleet in the towns of Mar del Plata and Bahía Blanca, with a higher level of maturity in the latter and use of facilitating technologies. Integration is presented in a partial form, requiring strategies for greater interaction between the areas.

Research limitations: The limitation is found in the reduced number of dimensions of analysis, the one corresponding to the so-called technological axis, with respect to digital maturity, since it has been revealed in this first work in the dimension related to advances in digitalization.

Originality: Study of the south-southeast territory of the province of Buenos Aires on the evolution in the adoption of enabling technologies that makes possible the characterization of the advance in digitalization and the detection of technological gaps, a focus of interest for the development of public policies.

Keywords: *Digitalization; Fishing Industry; Naval Industry; Supply Chain; Offshore.*

1. Introduction

In recent years, port management has undergone a significant transformation, shifting focus from traditional physical infrastructure to the optimization of product flows and efficient integration of intermodal logistics chains (Coto Millán et al., 2003). This transition has been fundamental for the evolution of ports, enabling their development from simple trade exchange zones to highly technical logistics centers. This change has required the implementation of business strategies and rigorous quality standards to increase competitiveness and ensure traffic routes in a global market (García et al., 2021).

The first generation of ports, rudimentary and with manual operations, was replaced by so-called industrial ports, limited to products originating from manufacturing. These were succeeded by third-generation ports, focused on transportation and their role as logistical platforms. The latest generation, surpassing the previous ones, is represented by network ports, with internationalization strategies, cooperation, and added logistical services for stowage and storage.

Digitalization in port management, driven by investments in technology and collaboration in information exchange, has facilitated the evolution of ports into integrators and providers of information, expanding their role beyond traditional commerce (Heilig et al., 2017). This change is essential to meet current regulatory and environmental demands, as well as to define effective digital transformation strategies (Venkatraman, 2017; Heilig et al., 2017). Regulatory and sustainability requirements, in addition to the recent offshore hydrocarbon

exploitation in the Buenos Aires ports of Mar del Plata and Bahía Blanca (Argentina), necessitate diagnostics on digitalization levels to define policies and programs that promote their update and improvement; this is the purpose of this work.

2. Literature Review

In recent years, the significant transformation of port management has progressively detached from the traditional focus based on physical infrastructure to concentrate on optimizing product flows and efficiently integrating intermodal logistics chains (Coto Millán et al., 2003). This transition is fundamental for the evolution of ports, from their initial conception as trade exchange zones to becoming logistics centers, with quality requirements and business strategy development to achieve greater competitiveness and retain traffic routes in a global market (García et al., 2021).

The evolution of ports can be distinguished into four generations, with a fourth generation port management incorporated in 1999 by the United Nations Conference on Trade and Development, building upon the three previous generations defined in 1990 by the same entity, with the following characteristics (Coto Millán et al., 2003):

- First generation: Initially designed for cargo transfer between land and sea, with manual operations and basic infrastructure. Small volumes of products were operated for a local or regional area (hinterland), and transactions occurred independently of context, usually on the pier, which was generally rudimentary and predominantly manual.
- Second generation: Recognized as an integral part of the transportation system and a hub for industrial and commercial activity, services were

limited to operating vessels and products in a manufacturing and heavy industry environment. Focused on a specific type of cargo, such as containers, operational improvements were achieved with the incorporation of cranes and other lifting equipment.

- Third generation: Advanced logistics functions were incorporated, including efficient product distribution using information and communication technologies to add value to port management operations and storage. They transformed into logistic and intermodal centers for handling large cargo volumes through automated systems.
- Fourth generation: Characterized by the incorporation of telematics networks between port areas and the diversification of operations, integrating global logistics chains to reach the end user; using logistics platforms, Industry 4.0 technologies, information flows, and human interaction networks providing additional services that generate greater added value.

Creating an agile, customer-centric, and innovation-oriented business culture is the main characteristic of digital transformation (Venkatraman, 2017). In the case of ports, digitalization is strongly facilitated by investments in technology and cooperation to promote information exchange (Heilig et al., 2017). The adoption of digital technologies and information systems reveals that ports increasingly become integrators and providers of port information, expanding their traditional commercial reach (Heilig et al., 2017).

Given the inherent complexity of hydrocarbon exploitation, the supply of materials and equipment to floating platforms, efficient transportation of people, and flow of personnel must be ensured. Ports play a significant role in the offshore industry value chain as command and control centers, in the reception, storage, and

distribution of materials and equipment, facilitating exports, and providing repair, maintenance, and specialized equipment services. The challenge for port administrations is transforming current ports into smart ports by implementing advanced technologies such as Artificial Intelligence, the Industrial Internet of Things, and Blockchain.

In this context, the question arises: how is the digitalization process in port administrations meeting current regulatory and environmental demands? Analyzing the phenomenon of digital transformation is essential to gain knowledge on the use of management technologies in the sector, providing useful input for defining roadmaps that promote digital transformation.

3. Methodology

This work is based on qualitative, exploratory research to characterize the adoption of technologies for port management. A case study analysis was conducted, selecting the ports of the cities of Mar del Plata and Bahía Blanca (Yin, 2018). The importance of evaluating the level of digitalization in these ports is founded on the growing demands for supplies, services, and permits generated by the recent start of offshore exploration off their coasts in March 2024. A methodological design with triangulation of methods was defined, consisting of in-depth interviews, secondary source information collection, and participant observation in port management settings.

A theoretical sample of businesspeople and public sector officials from the analyzed cities was defined to investigate the implementation of enabling technologies in systems, devices, and management processes. An interview guide, validated by experts in logistics and port management, was developed.

Subsequently, a pilot test was conducted to verify the scope of the proposed topics, and the interviews were carried out for subsequent analysis into relevant citations and codes in the study.

Participant observation was conducted during visits to the Port Consortiums to understand the context in which management processes are carried out and the personnel involved, in accordance with the case study application (Yin, 2018). Secondary source information was collected from official databases to obtain characteristics of the ports in connectivity attributes and certifications to ensure the quality and traceability of port processes as key variables to consider.

The conceptual framework for analyzing the interviews was based on an analysis of the digital maturity dimensions from scientific literature, choosing those defined by INDTech 4.0 for their greater scope and update (Ministry of Productive Development, 2022). These dimensions fall into the following thematic lines: strategy and business model, structure, human resources and culture, value chains, information systems and technological resources, products and services, and processes. This study addresses the dimension of information systems and technological resources.

4. Results

The analysis provides evidence of different degrees of technology appropriation in the port managements of Mar del Plata and Bahía Blanca. Although this is an exploratory study of one of the traditional dimensions of digital maturity analysis in organizations, the interpretation of the information remains preliminary, offering significant signals about progress in digitalization, particularly with system integration and the use of enabling technologies.

The Regional Port Consortium of Mar del Plata, a non-state public entity created by Decree 3572/2000 of the Provincial Executive Power (Buenos Aires), is the entity to which the port's operation and administration was delegated, which was enabled in 1922 (Gualdoni and Errazti, 2006, p. 68). Connectivity is mainly by 4G coverage (nPerf, 2024), and since 2005, it has held the Safe Port certification for terminals 2 and 3, granted by the Argentine Naval Prefecture (International Ship and Port Facility Security Code - ISPS Code) (Mar del Plata Port Consortium, 2024).

Various information systems are found for administrative-accounting management with modules for purchases, invoicing, revenues, payments, payroll settlement, and management of files to control requests made to the Consortium and their follow-up in the established administrative circuit. The maritime and vehicular fleet surveillance is carried out through stowage area control and truck and vessel traffic (entry and exit) to the port; for vessels, it manages movements, repairs, and provisioning. Access control is carried out over visitors entering port terminals through plastic cards and a closed-circuit TV system for access monitoring and video surveillance systems.

In Mar del Plata port administration, both management systems and control of vehicular and maritime fleets, stowage, and energy consumption are observed, while the use of enabling technologies in systems is incipient. There is a diversity of areas that are computerized with a high level of digitalization; however, these areas do not present an integrated perspective, and the possession of access devices does not respond to current trends to offer security guarantees.

The port of the city of Bahía Blanca, in the south of the Buenos Aires province, is managed by a non-state public entity, created in 1993 by Law No. 11,414 of the Buenos Aires Provincial Legislature. Connectivity is mainly by 4G coverage

(nPerf, 2024) and holds ISO 9001, ISO 14001, and ISO 45001 certifications (Bahía Blanca Port, 2024).

Information systems and technologies are observed to fulfill different functions, for administrative management: contractor personnel control for those entering the port area and supplier management, contracting, budget control, and internal areas through an integrated system (ERP). Data entry into the system is carried out by each port licensee and Consortium areas, such as grain operators in the logistics area. Once the cargo is registered, prior to port entry, its journey is monitored until its unloading, with reports from each licensee from their interface to the Consortium system. In this category of systems are both proprietary developments and one of the most widely used worldwide. The licensees have control systems for production, loads, dispatches, and warehouses, among others, showing the level of digitalization of upstream links in the port management supply chain.

Another functionality covered by systems is maritime fleet surveillance, through navigation control using a two-layer information system: one public, online, allowing identification of the vessels' characteristics and position, and another private, describing the economic operations of each vessel. The system, called Vehicle Tracking System (VTS), was implemented more than 20 years ago.

Among the enabling technologies used, the automation of video surveillance in 2022 stands out, through expanding the camera network and incorporating artificial intelligence to detect intruders and perimeter protection in sensitive and strategic port sectors, identifying people or object absence. This solution integrates with a module for reading vehicle licenses operating within the facilities.

In summary, Bahía Blanca port administration offers a certain level of digital maturity in the information systems and technological resources dimension: information is recorded in modular systems by function, and advanced technological resources, such as automation and artificial intelligence, are used, with partial integration between areas.

5. Discussion

In the cases under study, incipient levels of adoption of enabled technologies were observed, varying according to the functions and their degree of integration with other systems of the organization, offering evidence of a transition from third to fourth generation port management, with concrete initiatives to optimize product flows, but with weaknesses in the integration of information from the intermodal logistics chain.

The port management systems of the cities of Bahía Blanca and Mar del Plata follow the digitalization trends of other locations, prioritizing the monitoring of the flow of products between computer applications due to the precision and speed with which the information is evaluated for greater efficiency in the transactions. According to the evidence of the contribution of digitalization to digital transformation, as a factor of change, and its improvement in organizational performance, the observed transition of port management systems forces us to redouble efforts in favor of integration.

6. Conclusions

The analysis of technology adoption in port management in southern and southeastern Buenos Aires provides a key element for port management.

Understanding the characteristics, environment, and impact of technological innovation adoption, particularly the application of enabling technologies in the growing digital transformation of organizations, is a vector to facilitate the identification of technological development gaps and thus improve the efficiency, security, sustainability, and connectivity of operations.

The challenge of port management lies in the efficient use of data generated in the administration of goods flows, security, coordination of logistics operations and infrastructure maintenance. It is vital to convert this data into strategic information for the design of public policies on the effective and sustainable use of facilities and the development of environmentally friendly practices. Future studies will expand the analysis to other dimensions of digital maturity, since the current limitation is the approach to a single dimension.

References

- Consorcio Portuario Mar del Plata (2024). Disposición PNA. <https://puertomardelplata.net/disposicion-pna/>
- Coto Millán, P., Pesquera González, M. A., Castanedo Galán, J. y Núñez Sánchez, R. (2003). Impacto de las nuevas tecnologías en la gestión portuaria. Una aproximación empírica, *Transporte marítimo*, 353, 99-110.
- Gualdoni, P. y Errazti, E. (2006). El puerto de Mar del Plata. *FACES*, 12(26), 67-83.
- Heilig, L., Lalla-Ruiz, E. y Voß, S. (2017). Transformación digital en los puertos marítimos: análisis y marco de la teoría de juegos. *Netnomics*, 18(2), 227–254. <https://doi.org/10.1007/s11066-017-9122-x>
- Ley 11414 de 1993. Administración de Puertos por Entes de Derecho Público No Estatales. 02/08/1993. Decreto Promulgación: 2617/1993
- Ministerio de Desarrollo Productivo República Argentina (2 de mayo de 2024). *AMD INDTech: Test de autodiagnóstico de madurez digital*. <https://indtech.ar/amdIndtech.htm>
- Network Performance nPerf (30 de abril de 2024). Mapa de cobertura 3G / 4G / 5G, Argentina. <https://www.nperf.com/es/map/www/-/-/signal>
- Puerto Bahía Blanca (30 de abril de 2024). Normativas. <https://puertobahiablanca.com/normativas.html>

- Venkatraman, V. (2017). *The digital matrix: new rules for business transformation through technology*. LifeTree Media.
- Yin, R. (2018). *Case Study Research and Applications: Design and Methods*. SAGE Publications.

Effects of digitalization on business models and sustainability of the fishing industry

Alicia Zanfrillo. Facultad Regional Mar del Plata de la Universidad Tecnológica Nacional – Facultad de Ciencias Económicas y Sociales de la Universidad Nacional de Mar del Plata, Argentina. alicia@mdp.edu.ar

Mariano Morettini. Facultad de Ciencias Económicas y Sociales de la Universidad Nacional de Mar del Plata, Argentina. mariano.morettini@gmail.com

Abstract

Purpose: Describe the development of digital business models of fishing companies in the city of Mar del Plata and their relationship with the sustainability of production processes.

Methodology: The research is based on a descriptive-correlational quantitative methodology, with the application of a multivariate analysis technique, cluster analysis, to identify groupings of companies based on secondary sources of information.

Results: Mar del Plata fishing companies offer different asymmetries in the development of their business model through digital marketing channels, with few representations of current technological advances in the final stretch of the value chain.

Research limitations: The limitation of the work lies in the lack of longitudinal data that prevents evaluating long-term changes in the integration of digitalization and sustainability.

Originality: The study on business models and environmental commitment in the fishing industry in the southeast of the province of Buenos Aires reveals a predominant emphasis on commercial innovation, often to the detriment of comprehensive approaches. This approach decouples digitalization from sustainability, particularly among the sector's pioneers.

Keywords: *digital transformation; marketing channels; value chain; environmental commitment; southeastern Buenos Aires*

1. Introduction

The challenges imposed by sustainability and globalization affect both the food production industry and consumers. For the former, the increasing interconnection of global markets allows for production and commercialization in different countries with inputs from multiple origins, adding complexity to logistics along with greater competition and resource depletion. Consumers, at the other end of the value chain, demand higher quality standards, which are implemented through certifications and traceability systems. One of the industrial sector's responses to these requirements is to design diversification strategies, particularly those related to market expansion and the development of new and complementary products.

Leveraging the global demand for fishery products and capturing various customer segments involves adopting innovative options offered by technologies through e-commerce and platform economies, thereby generating added value for customers through new services and greater operational efficiency. The purpose of this study is to describe the effects of digitalization on the development of new business models and the commitment to sustainability in fishery companies in the city of Mar del Plata. The approach focused on a quantitative, descriptive-correlational investigation, using multivariate techniques such as cluster analysis, based on official information sources and digital content from the companies, providing a profile of the industry regarding sustainability and technological advancements.

2. Literature Review

The rapid advancement of digital transformation has profoundly changed organizational practices, improving the efficiency of production processes and optimizing resource allocation. In the fishery sector, digitalization improvements are observed at different stages of the chain: from mobile applications that allow identifying the origin of the catch based on location recognition and promoting sustainable management of bycatch species, to the establishment of new and innovative business models with content monetization and platform economies. (Ji & Li, 2021) show that the informatization of fishing has a long-term positive effect on economic efficiency, encouraging the incorporation of technologies.

Digitalization in the fishery industry is a process that employs enabling technologies such as robotics, additive manufacturing, cloud computing, artificial intelligence, and the Industrial Internet of Things, among others, to effectively support the improvement of productivity and economic efficiency of operations (Ji & Li, 2021). The increasing pressure on the fishery sector for sustainability and the adherence to high-quality standards for exports present companies with a central challenge: how to create value at different stages of their production cycle sustainably.

Digital transformation can contribute to the sector's expansion and offer significant benefits in terms of efficiency and productivity, waste reduction, and pollution (Rowan, 2023). Value capture for customers finds an appropriate vehicle in digital business models to reach a globalized market, with substantial expansion in recent years, extending the traditional format with technological support towards creative and innovative ways to generate value for users (Venkatraman, 2017). These new technologies provide transparency for

consumers and regulatory compliance through the provision of information about their origin and production.

3. Methodology

A quantitative methodology was adopted, through a descriptive-correlational, cross-sectional, non-experimental study, using multivariate techniques such as cluster analysis, based on secondary information sources. The study was conducted from august to september 2023 on active companies engaged in the processing and preservation of fish, crustaceans, and mollusks in the city of Mar del Plata. Company selection was based on published content in their digital media and official organizational information to identify their economic activity and tax status, determining the entity's validity.

The sample of selected companies presents the following characteristics: 90% conduct their commercial activity in international markets through the export of fishery products, and 73% are micro and small enterprises. To describe the digital business model of fishery industry companies, four variables were defined: (i) value chain (quality and origin certifications of the catch), (ii) products (indicator: digital catalog), (iii) processes (indicator: traceability system), and (iv) business model (indicator: digital commercialization channel). The research question addressed is: how does digitalization affect the development of new business models and the commitment to sustainability?

4. Results

The first result of interest to the study's objective addresses the degree of penetration of new digital business models: only 10% of the entities have online commercialization strategies, ranging from specific channels to the possibility of interaction with clients and wholesalers for product distribution. This proportion shows the low degree of penetration of new digital business models in the fishery product processing companies in the city of Mar del Plata. The most commonly used strategy by the entities studied to develop a direct sales channel with consumers and retailers is the development of proprietary e-commerce platforms, eliminating intermediaries and improving market access.

While 90% of the companies offer their product catalogs online, only 27% provide information on certifications, mostly those corresponding to standards required for exports to the European Union, the USA, Brazil, and other markets. Regarding traceability systems, 31% publish training instances on the topic for their staff and characteristics of the product batch labeling.

Cluster analysis reveals three groupings: the first, a small number with online orders and e-commerce platforms; the second, the majority of companies, which do not offer information about products, certifications, traceability, nor do they have digital channels; and finally, a small group with information on traceability and certifications, but without specific product information.

The analysis distinguishes company groupings with differentiated behaviors: a small number with early technology adoption and limited sustainability information; a small group with information on certifications and traceability but not integrating these practices into digital business proposals; and a large number

of laggards with low commitment to both environmental sustainability and transparency, and the adoption of new business models.

5. Discussion

The companies in Mar del Plata dedicated to fishery product processing possess a predominantly export-oriented nature, facing challenges associated with obtaining sustainable catch certifications and increasing demands for transparency in their operations through traceability systems.

In the context of the fourth industrial revolution, only a limited number of these companies have integrated new digital commercialization channels into their traditional business models. This integration has allowed for the elimination of intermediaries in product distribution and has provided significant advantages for accessing international markets. The small number of entities that have adopted this business model indicates an initial phase in the development of this technology within the sector. This contrasts with the more consolidated and widely disseminated digital presence model defined by content publication.

Digital transformation contributes to the expansion of the sector through online marketing, providing information on consumer preferences and shorter channels to access products, innovating in the way of generating value. Given the predominance of commercial innovation in pioneering entities, the content publication model widely adopted by the sector and the importance that consumers give to transparency, the development of new models that have information on the origin and preparation of the products is imperative for capturing value in terms of efficiency and productivity.

6. Conclusions

The development of digital business models facilitates access to new markets while promoting operational efficiency and cost reduction, thereby contributing to greater competitiveness and positioning at the forefront of the sector. The empirical work conducted provides evidence on the evolution in the incorporation of technologies in the fishery industry, indicating that these advances transcend their function as mere operational tools and induce significant changes in business models.

Digitalization allows new ways to generate value for the customer in a globalized context. However, these diversification strategies must be implemented together with a firm commitment to sustainability, offering relevant information to its stakeholders. This will reinforce organizational practices oriented towards transparency and offer guarantees to ensure consumer trust. Future research will address a study of primary sources of information that allow us to overcome the current limitation of work in the current digitalization and sustainability situation and enable the evaluation of long-term changes in the trajectory of companies, as a factor of impact on the organizational evolution.

References

- Ji, J. & Li, Y. (2021). The development of China's fishery informatization and its impact on fishery economic efficiency *Marine Policy*, 133. <https://doi.org/10.1016/j.marpol.2021.104711>
- Rowan, N. (2023). The role of digital technologies in supporting and improving fishery and aquaculture across the supply chain – Quo Vadis?. *Aquaculture and Fisheries*, 8(4), 365-374.
- Venkatraman, V. (2017). *The digital matrix: new rules for business transformation through technology*. LifeTree Media.

Session – “Shaping a Sustainable Business World: Perspectives & Practices”

Chair: Kevin Hemsworth

Corporate Sustainability Reporting Directive: the perception of Portuguese accountants

Ana Carolina Mendes. Polytechnic University of Coimbra, Coimbra Business School|ISCAC, Bencanta, 3045-601 Coimbra, Portugal. a2019132380@alumni.iscac.pt

Adriana Silva. Polytechnic University of Coimbra, Coimbra Business School|ISCAC, Bencanta, 3045-601 Coimbra, Portugal. afsilva@gmail.com

Clara Viseu. Polytechnic University of Coimbra, Coimbra Business School|ISCAC, Bencanta, 3045-601 Coimbra, Portugal. cviseu@gmail.com

Abstract

Purpose: In order to monitor the progress of sustainability in society, Directive 2022/2464 – Corporate Sustainability Reporting Directive (CDRD) appears, published on December 14, 2022 and coming into force on January 5, 2023, relating to non-financial reporting, which covers almost 50 000 companies and has the specific objective of making the non-financial information reported by companies credible (PwC, 2022). The main objective of this work is to identify the pressures that influence accountants' attitudes when subjected to more rigorous regulation of sustainability reports as outlined in the Corporate Sustainability Reporting Directive (CSRD). Regarding the pressures derived from sustainability reporting, Aguilera et al. (2007) studied social change in companies and distinguished four levels of pressures that drive changes. These pressures can be international (pressure from international standards, such as GRI standards, United Nations, and Value Reporting Foundation), national (pressures exerted by the government and public authorities), organizational (pressures from insiders, who make direct decisions, and outsiders, who exert power through collective actions), and, finally, individual (pressures from employees who are knowledgeable about sustainable reports). The high pressure from regulators, which has been the

subject of much criticism, represents a significant concern for managers, requiring careful attention (Imperiale et al., 2023). To this end, two specific objectives have been established to contribute to understanding the differences in accountants' attitudes regarding the new requirements for sustainability reports, by identifying pressures at various levels: 1) What pressures influence accountants to support the CSRD, and 2) What pressures influence accountants to support the enforcement of the CSRD.

Methodology: Initially, a qualitative methodology will be used, through the development of a cross-sectional questionnaire, with data collected in a specific period (Creswell & Creswell, 2017), aimed at Portuguese accountants. Subsequently, based on the data collected in the questionnaire, a quantitative methodology will be used, using a dependency technique (Silva et al., 2011). This technique will be a regression analysis, which aims to study the behavior of the dependent variables as a function of the independent/explanatory variables. This regression analysis is multiple, as several independent variables will be considered (Fávero et al., 2009) to answer the previously identified research questions.

Results: The results of the present study demonstrate a positive increase in awareness among professionals, particularly top management, regarding the disclosure of sustainability information. It can be concluded that private institutions are more likely to offer training for the preparation of sustainability reports than public institutions. However, 75% of respondents still have no experience in this area or solid knowledge on the topic. The overwhelming majority agree with the support of the OCC in the preparation of the reports, the mandatory auditing of the disclosed information, and the extension of the reporting obligation to all entities.

Originality: Due to the recent sustainability directive (CSRD), this study contributes to the perspective of professionals involved in sustainability reporting, particularly accountants, by examining the pressures and changes they are subjected to.

Keywords: *Sustainability reporting; CSRD; NFRD; Theories; Accountants' perspectives; Accountants' pressures.*

References

- Aguilera, R. V., Rupp, D. E., Williams, C. A., & Ganapathi, J. (2007). Putting the S back in corporate social responsibility: A multilevel theory of social change in organizations. *Academy of Management Review*, 32(3), 836–863.
<https://doi.org/10.5465/amr.2007.25275678>
- Creswell, J. W., & Creswell, J. D. (2017). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications.

- <https://books.google.pt/books?id=335ZDwAAQBAJ>
- Fávero, L. P. L., Belfiore, P. P., Silva, F. L. da, & Chan, B. L. (2009). *Análise de dados: Modelagem multivariada para tomada de decisões*. Elsevier.
- Imperiale, F., Pizzi, S., & Lippolis, S. (2023). Sustainability reporting and ESG performance in the utilities sector. *Utilities Policy*, 80, 101468.
<https://doi.org/10.1016/j.jup.2022.101468>
- PwC. (2022). *Diretiva de Reporte de Sustentabilidade Corporativo (CSRD)*.
- Silva, A. C. D., Wanderley, C. A. N., & Santos, R. D. (2011). Utilização de ferramentas estatísticas em artigos sobre Contabilidade Financeira – um estudo quantitativo em três congressos realizados no país DOI:10.5007/2175-8069.2010v7n14p11. *Revista Contemporânea de Contabilidade*, 7(14), 11–28.
<https://doi.org/10.5007/2175-8069.2010v7n14p11>

Exploring Non-Financial Incentives and Motivational Strategies: A systematic review of the literature

Ana Rita Silva Lima. Polytechnic University of Coimbra, Coimbra Business School – ISCAC. Portugal. a2019141598@alumni.iscac.pt

Patrícia Filipe Simões. Polytechnic of Coimbra, Coimbra Business School - ISCAC. Portugal. a2023127757@alumni.iscac.pt

Rosa Maria Correia Nunes. CEOS.PP Coimbra, Polytechnic University of Coimbra. Coimbra Business School - ISCAC. Portugal. rnunes@iscac.pt

Abstract

Purpose: The objective of this article is to delve into the specific types of non-monetary incentives that are becoming integral to contemporary organizational motivation strategies, shedding light on the diverse range of approaches aimed at enhancing employee motivation and commitment.

Methodology: We employed the PRISMA tool (Preferred Reporting Items for Systematic Reviews and Meta-analysis) to systematically review non-financial incentives and their relationship with motivation. To ensure a thorough and reliable data collection process, we utilized two databases: Scopus and Web of Science.

Results: The systematic review reveals key non-financial incentives prevalent in contemporary organizational motivation strategies. Recognition emerges as the most cited, followed by pay justice, career development, and challenging job roles. Gender satisfaction, transformational leadership, and work-life balance are also highlighted. These findings emphasize the varied approaches employed to enhance employee motivation and commitment.

Research limitations: This study has the usual limitations of a systematic review, lacking empirical evidence. It covers only articles resulting from the selection method used and encompasses only those published in the last five years.

Originality This article is original as it stems from the research conducted by the authors themselves.

Keywords: *Incentives; non-financial; motivational strategies; systematic review*

1. Introduction

In today's dynamic work environment, organisations are valuing non-financial incentives as a significant complement to monetary rewards to enhance employee performance, engagement, and retention. While financial compensation remains important, non-financial incentives like recognition, autonomy, and career progression opportunities are key in influencing employees' attitudes and behaviours. Confronted with the complexities of modern business, traditional leadership and management practices are often not enough. In response, Behavioural Science researchers are deeply engaged in identifying ways to strengthen employee dedication, zeal, and motivation, with non-monetary incentives emerging as particularly impactful (Hayati et al., 2014).

A systematic review conducted using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) methodology has explored the integration of these incentives into institutional motivation strategies. This review uncovers that recognition, career development, and work-life balance are key non-financial incentives prevalent in modern organisational motivation strategies, highlighting the diverse approaches used to enhance employee motivation and commitment.

The article follows a structured approach, beginning with a summary of the literature review of the articles included in the systematic review. Subsequently, the methodology of their selection is explained, followed by the presentation of the results and the discussion of their analysis. Finally, the article concludes with the findings.

2. Literature Review

Job satisfaction is shaped by the interplay of personal characteristics and workplace factors, as identified in industrial psychology (Harter et al., 2002). Beyond financial incentives like salary and bonuses, which are key to retention, job satisfaction is also driven by non-financial factors including personal achievement and responsibility (Sagar, 1998; Mukherjee, 2005). These elements are crucial for an employee's comprehensive engagement.

Motivation, pivotal for guiding and sustaining behaviour, is influenced by organisational stability and interpersonal relationships (Ancona et al., 2012; Hynes, 2012). Earlier research by Steven and Rammie (2000) emphasized the value of non-monetary incentives, a sentiment echoed by more contemporary findings by Nguyen et al. (2020), which demonstrate the importance of recognition and responsibility.

Transformational leadership behaviours, such as vision articulation and intellectual stimulation, have been linked to job satisfaction and performance (Ferozi & Chang, 2021). The significance of work-life balance is also acknowledged (Landry et al., 2022), while Hoare and Vandenberghe (2024) suggest that workplace resources can mitigate turnover intentions and impact well-being.

In essence, while financial rewards meet basic needs, non-financial incentives are essential for intrinsic motivation and engagement, underscoring the need for organisations to implement such strategies for enduring employee satisfaction and productivity (Coode, 2013).

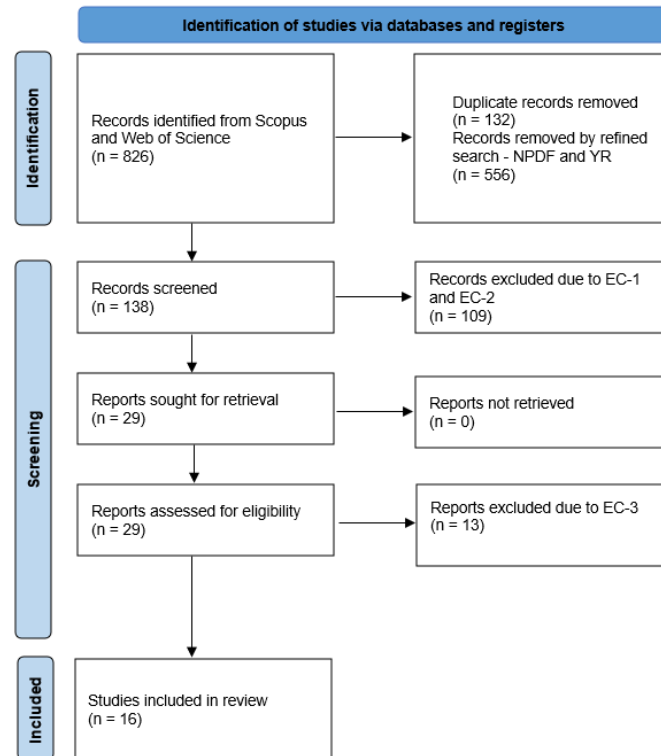
3. Methodology

Employing the PRISMA framework as detailed by Page et al. (2020), our systematic review assessed the impact of non-financial incentives on employee motivation, with Scopus and Web of Science serving as our data repositories. On 26 March 2024, we conducted a comprehensive search within the disciplines of Business, Management, and Accounting, limiting our scope to articles in English that included terms such as "Non-financial incentiv*" and "Non-financial motivat*". Our initial search yielded 826 articles, which, following deduplication procedures recommended by Zoltowski et al. (2014) using Endnote, was refined to 694. Exclusions based on accessibility and publication date reduced our initial 826 articles to 138, as depicted in Figure 1, adapted from Page et al. (2020). Further refinement using our study's specific exclusion criteria (Table 1) whittled down the selection through a thorough evaluation process.

We first screened titles and abstracts against our criteria, excluding 109 articles, which narrowed the field to 29. A subsequent in-depth review of these remaining articles, applying additional criteria to the full texts, resulted in a final selection of 16 relevant articles for in-depth analysis.

This process underscored the systematic approach's robustness in identifying relevant studies that elucidate the effects of non-financial incentives on employee motivation. Our findings are set to make a significant contribution to the understanding of motivational dynamics in organizational settings.

Figure 1 - PRISMA statement.



Source: Adapted from Page et al. (2020).

Table I:- Exclusion Criteria.

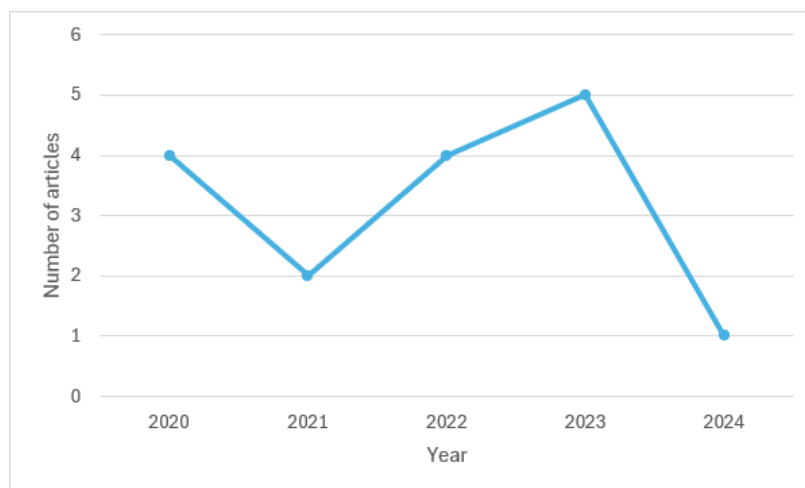
Exclusion Criteria		Reasons for Exclusion
No PDF found	NPDF	No PDF Found
Year relation	YR	Studies older than 5 years
Exclusion Criteria 1	EC-1	Studies with titles irrelevant to our investigation question
Exclusion Criteria 2	EC-2	Studies that mention our search terms in the abstract or keywords due to coincidences
Exclusion Criteria 3	EC-3	Studies with no well-defined research objectives

Source: Own Elaboration

4. Results and Discussion

This systematic review, adhering to PRISMA guidelines, analysed the distribution and impact of non-financial incentives within the workplace. The selection of 16 articles published between 2020 and 2024 from Scopus and Web of Science (Figure 2) highlights a significant increase in research interest, especially noted from 2020 to 2023, peaking in 2023 (Figure 2). This trend indicates a shift towards examining the effects of non-monetary motivators in enhancing organizational productivity and employee well-being.

Figure 2 – Number of documents included in our sample by year (n=16).



Source: Own Elaboration

Our analysis demonstrated significant interdisciplinary engagement with non-financial incentives, encompassing Business, Economics, Social Sciences, and Health (Table 2), indicating the nuanced interaction between various academic realms in understanding motivation.

Table II: Journals and number (#) of articles included in our sample (n=16).

Journal	#	Journal	#
Social Indicators Research	2	Problems and Perspectives in Management	1
Sustainability	2	Psychological Reports	1
Behavioral Sciences	1	Rossiiskii Zhurnal Menedzhmenta-Russian Management Journal	1
Frontiers in Psychology	1	Sa Journal of Human Resource Management	1
Journal of Asian Finance Economics and Business	1	Sosyoekonomi	1
Future Business Journal	1	Transylvanian Review of Administrative Sciences	1
International Journal of Health Policy and Management	1	Universitas Psychologia	1

Source: Own Elaboration

Additionally, we observed contributions from a diverse range of countries, including the United States, Japan, Romania, Germany, Turkey, Slovakia, the Netherlands, Poland, Spain, Russia, South Africa, Greece, Estonia, Vietnam, Switzerland, and Canada, reflecting the universal import of non-financial motivators across different organizational settings.

Building upon the global scope of our research, it's important to note that quantitative methods predominated in the studies we reviewed, comprising 69% of the methodologies. These studies focused extensively on empirical data to assess the impact of non-financial incentives, frequently utilizing surveys and statistical analyses to connect incentive strategies with performance indicators. Qualitative research, accounting for 25%, delved into the personal and psychological effects of these incentives on employee motivation and

satisfaction. Additionally, mixed methods, which represented 6% of the approaches, combined both quantitative and qualitative techniques to thoroughly investigate the underlying mechanisms driving these effects (Sale et al., 2002; Song, 2023)

Following the discussion on research methodologies, Table 3 provides a concise summary of the most studied non-financial incentives and their impacts, as derived from our research. It details the number of studies focusing on each incentive, the observed effects on employees, and the key authors who have made significant contributions to this area. This structured presentation enhances clarity and accessibility, offering a comprehensive overview of the existing literature on non-financial incentives.

Table III: Non-financial incentives studied in our sample (n=16).

Non-financial incentives	Number of results	Impact on Employees	Authors
Recognition	4	Improves morale and job satisfaction, linked with boosting employee morale and job satisfaction	Nguyen et al. (2020); Celbis et al. (2023); Pandya et al. (2022);
Pay justice	3	Influences organizational retention strategies	Valet (2023); Landry et al. (2022); Mbukwana and Ayandibu (2023).
Career development	2	Critical in retaining talent and promoting a positive work environment, addresses employee growth and mitigates turnover intentions	Hoare and Vandenberghe (2024); Coudounaris et al. (2020).
Challenging job	2	Provides tasks that test abilities, preventing monotony and promoting the development of skills	Varshavskaya and Podverbnykh (2023); Piotrowska (2022).
Gender satisfaction	2	Crucial for fostering well-being, inclusivity, and diversity in the workplace	Živěicová et al. (2022); Ermis-Mert (2020).

Work-Life Balance	1	Enhances productivity and organizational commitment, important for promoting employee well-being and trust	Gonzalez and Sunyer (2021).
Transformational Leader	1	Inspires and empowers teams, enhancing motivation and job satisfaction	Ferozi and Chang (2021).
Work environment	1	Promotes a positive workplace culture	Kang and Malvaso (2023).

Source: Own Elaboration based on systematic review findings.

Our review identifies recognition, career development, and work-life balance as the most influential non-financial incentives in modern workplace settings. Specifically, recognition has been robustly linked to improvements in employee morale and job satisfaction (Nguyen et al., 2020; Celbis et al., 2023). Career development is vital for talent retention and is associated with reducing turnover intentions, particularly among overqualified employees (Piotrowska, 2022). Similarly, effective work-life balance strategies are critical for enhancing productivity and fostering a supportive work environment.

The importance of fostering gender satisfaction to enhance workplace inclusivity and diversity is also highlighted (Živěicová, at al., 2022; Ermis-Mert, 2020). Moreover, transformational leadership practices, which inspire and empower employees, are shown to significantly contribute to improved job satisfaction and organizational culture (Ferozi & Chang, 2021).

These findings highlight how non-financial incentives are crucial for fostering an engaged workforce and creating a productive, positive work environment. The variety of research methods used in these studies deepens our understanding and confirms the significant influence of these incentives on both employee behaviours and organizational results. Taking a holistic approach to employee

motivation, beyond just monetary rewards, is vital for long-term organizational success, as demonstrated by recent research findings (Table 3).

5. Conclusion

This review highlights the significant impact of both financial and non-financial incentives in enhancing organizational motivation, productivity, and success. Our interdisciplinary research enriches our understanding of how these incentives synergistically drive employee motivation. Notably, non-financial motivators like recognition, career development, and a supportive work environment are essential for boosting employee satisfaction.

Given these results, organizations need to prioritize these non-financial incentives. Effective recognition programs, for instance, could include regular employee awards, peer-to-peer recognition platforms, or milestone celebrations. Additionally, providing dynamic career development opportunities, such as personalized training programs and mentorship initiatives, along with clear pathways for advancement, directly addresses individual growth aspirations. Creating an inclusive and supportive work environment that promotes challenging job roles and maintains a well-balanced work-life dynamic is also fundamental.

Integrating these non-financial incentives with fair pay, a vital financial incentive, in a hybrid model allows companies to meet the diverse needs of their workforce more effectively and enhance organizational resilience. Adopting this mixed-strategy approach ensures that both types of incentives work synergistically to improve employee satisfaction and organizational outcomes.

Future research should assess the optimal mix of financial and non-financial incentives across cultures, especially in Europe, to determine if a universal strategy applies or if regional customization is needed.

References

- Ancona, A. M., Camacho, G. M., & García, C. (2012). Motivación laboral en empleados administrativos de la Universidad de Juárez Autónoma de Tabasco. *Revista Internacional Administración y Finanzas*, 5(4), 121–134.
- Celbis, M. G., Wong, P. H., Kourtis, K., & Nijkamp, P. (2023). Job Satisfaction and the 'Great Resignation': An Exploratory Machine Learning Analysis. *Social Indicators Research*, 170(3), 1097–1118. <https://doi.org/10.1007/s11205-023-03233-3>
- Coode, D. (2013). Finding the Right Fit for Long-Term Satisfaction [My First Job]. *IEEE Potentials*, Potentials, *IEEE*, 32(4), 44–45. <https://doi.org/10.1109/MPOT.2013.2254191>
- Coudounaris, D. N., Akuffo, I. N., & Nkulenu, A. O. (2020). Human Resource Management for Ghanaian Nurses: Job Satisfaction Versus Turnover Intentions. *Sustainability*, 12(17), 7117. <https://doi.org/10.3390/su12177117>
- Ermis-Mert, A. (2020). A Multivariate Investigation of Overall Happiness, Job Satisfaction and Income Satisfaction of Women and Men in Turkey. *Sosyoekonomi*, 28(44), 11–26. <https://doi.org/10.17233/sosyoekonomi.2020.02.01>
- Ferozi, S., & Chang, Y. (2021). Transformational leadership and its impact on employee performance: focus on public employees in Afghanistan. *Transylvanian Review of Administrative Sciences*, 17(63), 49–68. <https://doi.org/10.24193/tras.63E.3>
- Gonzalez, F., Selva, C., & Sunyer, A. (2021). The Influence of Total Compensation on Job Satisfaction. *Universitas Psychologica*, 20. <https://doi.org/10.11144/Javeriana.upsy20.itcj>
- Hayati, D., Charkhabi, M., & Naami, A. (2014). The relationship between transformational leadership and work engagement in governmental hospitals nurses: a survey study. *SpringerPlus*, 3, 25.
- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a metaanalysis. *Journal of applied psychology*, 87(2), 268–279.

- Hoare, C., & Vandenberghe, C. (2024). Are They Created Equal? A Relative Weights Analysis of the Contributions of Job Demands and Resources to Well-Being and Turnover Intention. *Psychological Reports*, 127(1), 392-418.
<https://doi.org/10.1177/00332941221103536>
- Hynes, G. E. (2012). Improving Employees' Interpersonal Communication Competencies: A Qualitative Study. *Business Communication Quarterly*, 75(4), 466-475. <https://doi.org/10.1177/1080569912458965>
- Ilea, C. D. N., Daina, L. G., Bungau, S., Tit, D. M., Uivarosan, D., Moleriu, L., Petre, I., Bungau, C., & Petre, I. (2020). Sustainable Management, Instable Legislation Regarding Wages, and Employee Satisfaction/Motivation in Two Romanian Hospitals. *Sustainability*, 12(3), 909. <https://doi.org/10.3390/su12030909>
- Kang, W. X., & Malvaso, A. (2023). Associations between Personality Traits and Areas of Job Satisfaction: Pay, Work Itself, Security, and Hours Worked. *Behavioral Sciences*, 13(6), 445. <https://doi.org/10.3390/bs13060445>
- Landry, A. T., Papachristopoulos, K., Dubord, M. A. G., & Forest, J. (2022). Here's Some Money, Your Work's So Worthy?: A Brief Report on the Validation of the Functional Meaning of Cash Rewards Scale. *Frontiers in Psychology*, 13, 821501. <https://doi.org/10.3389/fpsyg.2022.821501>
- Mukherjee, S. (2005). *Organization & Management and Business Communication*. New Age International.
- Mbukwana, V. L., & Ayandibu, A. O. (2023). Impact of performance incentives on employees' performance in a university in KwaZulu-Natal. *Sa Journal of Human Resource Management*, 21, 2114. <https://doi.org/10.4102/sajhrm.v21i0.2114>
- Nguyen, H. T., Nguyen, N. D., & Tran, B. V. (2020). Factors Associated with Middle Managers' Work Motivation: Evidence from SMEs in Vietnam. *Journal of Asian Finance Economics and Business*, 7(11), 1009-1019.
<https://doi.org/10.13106/jafeb.2020.vol7.no11.1009>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). Updating guidance for reporting systematic reviews: development of the PRISMA 2020 statement. *Journal of clinical epidemiology*, 134, 103-112. <https://doi.org/10.1016/j.jclinepi.2021.02.003>
- Pandya, S., Hamal, M., Abuya, T., Kintu, R., Mwanga, D., Warren, C. E., & Agarwal, S. (2022). Understanding Factors That Support Community Health Worker Motivation, Job Satisfaction, and Performance in Three Ugandan Districts: Opportunities for Strengthening Uganda's Community Health Worker Program. *International Journal of Health Policy and Management*, 11(12), 2886–2894.
<https://doi.org/10.34172/ijhpm.2022.6219>
- Piotrowska, M. (2022). Job attributes affect the relationship between perceived overqualification and retention. *Future Business Journal*, 8(1), 38.
<https://doi.org/10.1186/s43093-022-00147-3>
- Sagar, R. (1998). *Together with business studies*. RachnaSagar PVT.
- Steven, H. A., & Rammie, K. (2000). An analysis of the utilization and effectiveness of non- financial incentives in small business. *Journal of Management Development*, 19(9), 733-763. <https://doi.org/10.1108/02621710010378200>

- Valet, P. (2023). Perceptions of Pay Satisfaction and Pay Justice: Two Sides of the Same Coin? *Social Indicators Research*, 166(1), 157-173.
<https://doi.org/10.1007/s11205-022-03059-5>
- Varshavskaya, E. Y., & Podverbnykh, U. S. (2023). Impact of job mismatches on job satisfaction and turnover intention: case of Russia. *Rossiiskii Zhurnal Menedzhmenta-Russian Management Journal*, 21(1), 115-132.
<https://doi.org/10.21638/spbu18.2023.106>
- Živěicová, E., Masárová, T., & Gullerová, M. (2022). Job satisfaction in the light of gender in the engineering sector in Slovakia. *Problems and Perspectives in Management*, 20(2), 1-9. [https://doi.org/10.21511/ppm.20\(2\).2022.01](https://doi.org/10.21511/ppm.20(2).2022.01)

Sustainability and Ethics in Integrated Annual Reports – A Preliminary Study

Ricardo Alves, CICET-FCVC ISAG Porto. ricardoalves110@gmail.com

António Oliveira, CEI-ISACP, CEOS.PP e CICET-FCVC ISAG.
antonio.oliveira@isag.pt

Ana Borges, CICET-FCVC ISAG Porto. anaborges@isag.pt

Abstract

Purpose: The importance of sustainability (De Villiers *et al*, 2022), as well as the way organizations report on issues related to their social performance (Ibáñez-Forés *et al*, 2023), has been increasing (De Villiers, *et al*, 2022; 2024; Şahin & Çankaya, 2020).

This increase, especially in large European companies (Lock & Seele, 2016; Moneva *et al*, 2023; Tarquinio *et al*, 2018), is related to different objectives, among which we can highlight: legal obligation (Camilleri, 2022), the relationship between ethics, sustainability and financial performance (Kim *et al*, 2023; Thuy *et al*, 2021), or organizational reputation (Odriozola *et al*, 2017).

Nevertheless, different authors (e.g., Elving, 2013; Greenwood & Van Buren, 2013; García-Sánchez *et al.*, 2020; Zhao *et al.*, 2023) have noted problems of lack of trust on the part of stakeholders with regard to the information disclosed (Nguyen *et al.*, 2023), which they refer to as CSR-Scepticism and Green-Scepticism), and the credibility of this information is necessary for business development (Moggi, 2023).

Within the scope of this analysis, behaviors and the reporting of sustainability and ethics are particularly relevant. Aguinis & Glavas (2019) point out that the most common method used to focus on the company and the analysis of its analytical results, but today it focuses on individual analysis (Kim *et al.*, 2023; Marti *et al.*, 2023; Zhao *et al.*, 2023) and it is this reporting process that we propose to analyze.

This analysis aims to contribute to the debate and, increasing prominence, of Sustainability and Ethics in the Integrated Annual Reports of large European companies.

Methodology: We adopt post-positivism as philosophical ground and a quantitative approach. In data collection, we used systematic and individual documentary observation. The sample collected consists of 250 Integrated Reports from 25 companies over the period from 2013 to 2022 – 10 years. The 25 companies, 5 per country, were selected based on the Market Capitalization – national MarketCap, at the

date the data was obtained. We selected 5 countries: Germany, France, Italy, Portugal and the United Kingdom and as a MarketCap proxy the main national indices: DAX 40, CAC 40, FTSE MIB, PSI 20 and FTSE 100 respectively. To compute the multiple regression models, we used STATA/SE 13.1.

Results: The growing importance of Sustainability and Ethics references for the period under analysis is statistically significant. There is also statistically significant evidence regarding the Corporate Governance effect, the behavior of different countries, different sectors and their annual evolution.

Research limitations: From an empirical point of view, the sample was limited to the 5 largest companies from 5 European countries, which limits the generalization of behavior. As this is a preliminary study, more must be carried out.

Originality: This analysis is innovative in providing new insights into Sustainability and Ethics reporting in the Integrated Annual Reports of large European companies.

Keywords: *Sustainability; Ethic; Integrated Annual Reports.*

References

- Aguinis, H., & Glavas, A. (2019). On corporate social responsibility, sensemaking, and the search for meaningfulness through work. *Journal of Management*, 45(3), 1057-1086.
- Camilleri, M. A. (2022). The rationale for ISO 14001 certification: A systematic review and a cost-benefit analysis. *Corporate Social Responsibility and Environmental Management*, 29(4), 1067-1083.
- De Villiers, C., Dimes, R., & Molinari, M. (2024). How will AI text generation and processing impact sustainability reporting? Critical analysis, a conceptual framework and avenues for future research. *Sustainability Accounting, Management and Policy Journal*, 15(1), 96-118.
- De Villiers, C., La Torre, M., & Molinari, M. (2022). The Global Reporting Initiative's (GRI) past, present and future: critical reflections and a research agenda on sustainability reporting (standard-setting). *Pacific Accounting Review*, 34(5), 728-747.
- Elving, W. J. (2013). Scepticism and corporate social responsibility communications: The influence of fit and reputation. *Journal of Marketing Communications*, 19(4), 277-292.
- García-Sánchez, I., Martínez-Ferrero, J., & Azevedo, T. (2020). Does Capital Market Distrust CSR Reporting? Economic Benefits in Presence of Complementary Monitoring Mechanism. *Journal of Business, Accounting and Finance Perspectives*, 2(3), 1-22.

- Greenwood, M., & Van Buren III, H. J. (2010). Trust and stakeholder theory: Trustworthiness in the organization-stakeholder relationship. *Journal of Business Ethics*, 95, 425-438.
- Ibáñez-Forés, V., Martínez-Sánchez, V., Valls-Val, K., & Bovea, M. D. (2023). How do organisations communicate aspects related to their social performance? A proposed set of indicators and metrics for sustainability reporting. *Sustainable Production and Consumption*, 35, 157-172.
- Kim, B. J., Chang, Y., & Kim, T. H. (2023). Translating corporate social responsibility into financial performance: Exploring roles of work engagement and strategic coherence. *Corporate Social Responsibility and Environmental Management*, 30 (5), 2555-2573.
- Lock, I., & Seele, P. (2016). The credibility of CSR (corporate social responsibility) reports in Europe. Evidence from a quantitative content analysis in 11 countries. *Journal of Cleaner Production*, 122, 186-200.
- Marti, E., Fuchs, M., DesJardine, M. R., Slager, R., & Gond, J. P. (2023). The Impact of Sustainable Investing: A Multidisciplinary Review. *Journal of Management Studies*, 1-31.
- Moggi, S. (2023). Sustainability reporting, universities and global reporting initiative applicability: a still open issue. *Sustainability Accounting, Management and Policy Journal*, 14(4), 699-742.
- Moneva, J. M., Scarpellini, S., Aranda-Usón, A., & Alvarez Etxeberria, I. (2023). Sustainability reporting in view of the European sustainable finance taxonomy: Is the financial sector ready to disclose circular economy?. *Corporate Social Responsibility and Environmental Management*, 30(3), 1336-1347.
- Nguyen, N., Priporas, C. V., McPherson, M., & Manyiwa, S. (2023). CSR-related consumer scepticism: A review of the literature and future research directions. *Journal of Business Research*, 169, 114294.
- Odriozola, M. D., & Baraibar-Diez, E. (2017). Is corporate reputation associated with quality of CSR reporting? Evidence from Spain. *Corporate Social Responsibility and Environmental Management*, 24(2), 121-132.
- Şahin, Z., & Çankaya, F. (2020). The importance of sustainability and sustainability reporting. *New Approaches to CSR, Sustainability and Accountability*, 1, 45-59.
- Tarquinio, L., Raucci, D., & Benedetti, R. (2018). An investigation of global reporting initiative performance indicators in corporate sustainability reports: Greek, Italian and Spanish evidence. *Sustainability*, 10(4), 897.
- Thuy, C. T. M., Khuong, N. V., Canh, N. T., & Liem, N. T. (2021). Corporate social responsibility disclosure and financial performance: The mediating role of financial statement comparability. *Sustainability*, 13(18), 10077.
- Zhao, L., Yang, M. M., Wang, Z., & Michelson, G. (2023). Trends in the dynamic evolution of corporate social responsibility and leadership: A literature review and bibliometric analysis. *Journal of Business Ethics*, 182(1), 135-157.

The Furniture Sector in Portugal and Europe: From Characterising the Sector to Proposing a Training Course for Managers of Micro SMEs

Susana Leal. Instituto Politécnico de Santarém e Life Quality Research Centre - CIEQV, Portugal. Susana.leal@esg.ipsantarem.pt

Sandra Oliveira. Instituto Politécnico de Santarém, Portugal. Sandra.oliveira@esg.ipsantarem.pt

João Nascimento. Instituto Politécnico de Santarém, Portugal. Joao.nascimento@esg.ipsantarem.pt

Ana Loureiro. Instituto Politécnico de Santarém, Portugal. Ana.loureiro@ese.ipsantarem.pt

Adem Tekerek. Gazi University, Turkey. atekerek@gazi.edu.tr

Alper Güzel. Gazi University, Turkey. guzel@gazi.edu.tr

Abstract

Purpose: This work aims to present the results of the Erasmus+ Int4Furn project, which is still under development. The main output will be a training course to strengthen the internationalisation skills of professionals (entrepreneurs or business people) or students in the furniture sector at European level (including Turkey). The preparatory work for this includes the following activities: (a) a summary of the macroeconomic panorama of the furniture sector, with a special focus on Portuguese statistics and comparison with European statistics, (b) identification of training needs in the area of internationalisation for micro-SMEs in the furniture sector, in Portugal.

Methodology: The paper is divided into two sections. The first section analyses official statistics on the furniture sector in Portugal and Europe. Through contacts with business associations in the sector (e.g. Paços de Ferreira Business Association; Portuguese Association of Furniture and Related Industries), the main strengths, weaknesses, opportunities and threats of the furniture sector are identified. In a second part, a survey of training needs will be carried out through interviews with professionals in the furniture sector in Portugal.

Preliminary Results: Given that the work is ongoing, preliminary results are presented. Over the last decade, Portugal has undergone a significant transformation in its furniture industry, positioning itself in the market through innovative design and technology, boosting the sector's export capacity. Exports from the Portuguese furniture and related products cluster reached a record 2,199 million euros in 2023, 10 per cent more than in 2022 and 24 per cent more than in 2021' (Agência Lusa, 2024; APIMA, 2024). Furniture exports account for around 90% of turnover (Agência Lusa). The results of the SWOT analysis of the furniture sector in Portugal are also presented. Taking into account the framework of the furniture sector, the training needs of professionals have been identified in order to promote the internationalisation processes of micro-SMEs in the sector.

Research limitations: The main limitation is that the work is still under development and the training course has not been tested on potential trainees. Once the course has been developed, it will be validated on three levels: (a) first with a sample of higher education professors with knowledge of business internationalisation; (b) then with a broad sample of higher education students and professionals from the furniture sector; (c) finally, by a group of stakeholders representing the furniture sector (associations) or structures supporting the internationalisation of small and medium-sized businesses.

Originality: The main results of an innovative European project are presented, focusing on the training course for managers of micro-SMEs in the furniture sector to strengthen their internationalisation skills. The main originality stems from the fact that all the training is designed to take place at a distance, at the professional's pace, and is personalised to the most relevant issues in the furniture sector. Examples and specificities from various European countries, including Portugal, are shared.

Keywords: *Erasmus+; Int4Furn; internationalisation; micro-SMEs; Portugal; Furniture sector.*

Acknowledgements: This work is financed by European funds through the Erasmus Agency, under the project Int4Furn - 2022-1-TRO1-KA220-VET-000089008.

References

Agência Lusa (2024). Exportações de mobiliário sobem 10% para valor recorde de 2.199 milhões de euros em 2023. <https://observador.pt/2024/02/28/exportacoes-de-mobiliario-sobem-10-para-valor-recorde-de-2-199-milhoes-de-euros-em-2023/>

APIMA (2024). Associação Portuguesa das Indústrias de Mobiliário e Afins. <https://www.apima.pt/>

The taxation of crypto-assets according to the personal income tax

José de Campos Amorim. CEOS.PP, Porto Accounting and Business School (ISCAP). j.camposamorim@gmail.com

Abstract

Purpose: The aim of this study is to analyse the tax regime for crypto-assets in order to understand the differences between categories B, E and G of the IRS, with a view to better understanding their tax framework. This study also allows us to understand the specificities of each of the categories in the global context of the IRS, taking into account the OECD rules on this matter.

Methodology: To carry out this work, a quantitative research method will be used, based on the collection of data on the tax system and the study of the different IRS categories. Data collection involves analysing the IRS Code (collecting, reading and analysing legislation) and carrying out case studies on the taxation of business income, capital and capital gains under IRS.

Results: This study of the taxation regime for crypto-assets under the IRS allows us to understand the specificities of crypto-assets, how they fit into the various IRS categories and to understand the differences in the taxation regime according to the income obtained in order to guide taxpayers on the applicable regime and their tax obligations.

Limitations: The main limitations result from the fact that there is little information on this regime given the fact that it was recently introduced into the tax system, that there is no data on the effectiveness of its application and on the competitiveness of the Portuguese tax system compared to other countries.

Originality: This study has the particularity of analysing a new type of taxable income, a new IRS tax regime, understanding the differences in the regime and assessing its impact in relation to the different IRS categories.

Keywords: Crypto-assets; Cryptocurrencies; Blockchain; Taxation; personal income tax.

1. Introduction

Earning income from crypto-assets generates the obligation to pay taxes. Taxation depends on the type of crypto-assets, which go far beyond so-called cryptocurrencies. This taxation raises a series of issues that need to be clarified regarding the nature of crypto-assets, the regulation and the tax regime. Crypto-assets can generate different sources of income that fall into different personal income tax categories.

Therefore, it is important to verify the taxable event and the subjective incidence before determining the taxable income according to the various IRS categories. In view of the uncertainty and insecurity of these virtual assets, it is important to provide an answer to all the questions that the taxation of crypto-assets raises in terms of personal income tax, seeking to answer the doubts raised by holders of income from crypto-assets. The aim is to enlighten all those who invest in this type of product.

In August 2022, the OECD approved the Crypto-Asset Reporting Framework (CARF), a framework that provides for the automatic exchange of relevant tax information on crypto-assets, i.e. a new global tax transparency structure that provides for the reporting of tax information on crypto-assets, with a view to the automatic and annual exchange of information by the tax administrations of the different countries. This CARF provides for the automatic communication of tax information on crypto-asset transactions in a harmonised way.

The European Union approved the MiCA (Markets in Crypto Assets) regulation with a view to regulating the crypto-asset markets, creating rules for crypto-asset service providers and end consumers and thus tackling the uncertainties of the cryptocurrency market, thereby guaranteeing the financial transparency of crypto-asset exchanges.

Member states will now have common rules to identify, regulate and supervise entities operating in the market, users who buy and sell crypto-assets and to track transactions in order to prevent and combat illicit activities. This regulation, which came into force in July 2023, only becomes effective on 30 December 2024. This regulation obliges the introduction of a declaration of communication of operations with crypto-assets through Article 124-A of the CIRS.

Crypto-assets generate various types of income for tax purposes and have a decisive impact on the decisions of investors who use all kinds of assets to obtain

greater economic returns. The platforms where crypto-assets are traded offer a portfolio of assets for investors who fall into the various categories of income for IRS purposes.

In view of the evolution of the concept and the new tax framework, we will first discuss the concept of crypto-assets and then provide a framework for the personal incidence and analyse the rules for the real incidence of crypto-assets in the different income categories.

2. Literature Review

According to article 10, no. 17 of the CIRS, a crypto-asset is any digital representation of value or rights that is intended to be transferred or stored electronically using distributed ledger technology or another similar technology.

The term 'crypto-asset' is linked to the cryptocurrency, Bitcoin, as a decentralised means of payment (Rodrigues, 2019, p.23-24). Bitcoin is the first relevant crypto-asset that emerged in 2009 as an electronic cryptocurrency with a view to making online payments without a financial intermediary, and which has contributed to the development of other currencies (cryptocurrencies) and other types of crypto-assets (Graf, 2016, p. 6-10). According to the Bank of Portugal, Bitcoin is 'a two-way virtual currency payment model, in which virtual currency competes with legal tender (i.e. euro, dollar)' (Banco de Portugal, 2013).

There is a whole technology behind crypto-assets, consisting of blockchain and Distributed Ledger Technology (DLT - public transaction registry) (Luz, 2021, p. 11), the former of which was created to create a network of cryptographically protected blocks of information organised sequentially. It is a technology based on a set of algorithms that allows transfers to be made, with Bitcoin being the first cryptocurrency to use this technology.

DLT technology (AT, 2022, p. 8) presents a set of structured information distributed across several servers located in different countries, without the need for intermediation or supervision by central services or financial institutions, with the data being stored and distributed by the various users, each of whom can control the behaviour of the other users. Once everyone has access to the data, consensus is required for transactions to be valid. Both technologies allow for the common management of databases in peer-to-peer (p2p) networks, with DLT

technology being applicable to a wide range of economic operations, unlike blockchain which uses DLT technology for certain specific types of operations. p2p allows online payments to be made directly without going through a financial institution (Nakamoto, 2008, p. 1). The cryptographic system does not precisely require intermediaries to operationalise transactions.

There are various types of crypto-assets, including cryptocurrencies, stablecoins, tokens and NFTs (Non Fungible Tokens). Cryptocurrencies, as a digital currency, are an alternative to the fiat money issued by banks. Cryptocurrencies use blockchain technology to buy goods and services or transfer values. The income earned results from the difference between the purchase and sale price. As for stablecoins, these are cryptocurrencies linked to certain reference assets such as the dollar, the euro or the gold, in order to guarantee a certain stability and security for investors. As for tokens, they are 'digital representations of assets or utilities and can represent any assets that are fungible and tradable' (Rodrigues, 2019, p. 26). They are lines of computer code (LOC) to which a certain value is assigned and which are registered and controlled via the p2p sharing network, and which store the transactions carried out. The concept of tokens should not be confused with cryptocurrency or virtual currency, as all cryptocurrencies are tokens, but not all tokens are cryptocurrencies, i.e. they are a means of payment. NFTs, unlike cryptocurrencies, are unique and non-fungible, and make it possible, for example, to convert a work of art into an NFT. The income results from the sale of tokens on the secondary market through a specialised company.

Let's take, for example, the case of a taxpayer, covered by the simplified category B regime, who earned a total of €10,000 from the sale of several NFT units. In this case, the coefficient of 0.15 will be applied to transactions with crypto-assets, as stipulated in article 31(1)(a) of the CIRS. In other words, sales of €10,000 will be taxed at €1,500 ($€10,000 \times 0.15$), which must be included for the purposes of applying the progressive rates of article 68 of the CIRS, and the taxpayer must submit Annex B of the IRS Form 3.

Lastly, we would highlight ICOs (Initial Coin Offering) and IBOs (Initial Bond Offering) (Antunes, 2022, p. 16; Adhami, S., Giudici, G., Martinazzi, S., 2018, p. 7; ESMA, 2019), which are digital currencies usually associated with start-ups, ICOs being a way of financing these new companies. ICOs allow tokens to be issued and allow investors to deliver digital currencies in exchange for tokens, in the expectation that the tokens will appreciate in value in the future so that they can be sold at a higher price and investors can make a profit.

These are some of the various crypto-assets and the technologies associated that serve as the basis for their IRS taxation.

3. Taxation regime

3.1. Taxation according to category B

This category includes income earned by natural persons who habitually carry out an economic activity on their own account. The taxable person is taxed on the activity related to issuing crypto-assets, including mining, or validating crypto-asset transactions through consensus mechanisms on a regular basis.

Taxpayers who hold crypto-asset portfolios and who habitually carry out the activity of buying and selling crypto-assets, as well as miners, are taxed on the annual value of their income under category B of the IRS.

According to Article 4(1)(o) of the CIRS, this category includes income from commercial and industrial activities resulting from operations related to the issuance of crypto-assets, including mining, or the validation of crypto-asset transactions through consensus mechanisms.

Income earned from crypto-assets is taxed according to the simplified or accounting regime. In the simplified regime, the coefficients of 0.15 apply to transactions with crypto-assets (article 31, no. 1, point a) of the CIRS) and 0.95 in the case of income from crypto-asset mining (article 31, no. 1, point d) of the CIRS). This means that in the case of operations with crypto-assets, only 15 per cent of the value of the operations is considered income, while in the case of mining, the income received (Bitcoin) in return for mining is subject to a tax coefficient of 0.95.

Unlike operations with crypto-assets, mining is more expensive as it involves large investments in equipment, namely computers and energy, so the simplified tax regime may not be the most appropriate, as only 5% of the amount invoiced (according to the 0.95 coefficient) is considered to be expenditure, which is why 'miners' usually opt for the organised accounting regime.

Let's take, for example, the case of a mining activity in which the taxpayer has several expenses, such as the depreciation of mining equipment, the depreciation of the solar energy system and the cost of electricity. The expenses

incurred must be deducted from the total receivable in crypto-assets. If we consider an annual income from crypto-assets of €100,000 and an expense of €40,000, in the case of opting for the simplified regime, the net income is €95,000 ($100,000 \times 0.95$).

If you choose the accounting system, the taxable profit, calculated in accordance with article 17 of the CIRC, is €60,000 ($100,000 - 40,000$). This takes into account the non-deductible costs of article 23-A of the CIRC (remission to the CIRC, according to article 32 of the CIRS) and the non-deductible costs of article 33 of the CIRS, such as the entrepreneur's own remuneration and the costs of the residential property that is partly used for business activity, such as rent, water and telephone, which are only deductible to the tune of 25 per cent.

Taxable profit is determined in accordance with article 17 of the CIRC, which defines that taxable profit is constituted by the algebraic sum of the net profit for the period and the positive and negative variations, verified in the same period and not reflected in that profit, determined on the basis of the accounts, and possibly corrected in accordance with the terms set out in the CIRC.

Under the simplified regime, income from crypto-asset transactions and income from mining activities is deemed to have been obtained when the crypto-assets are sold, in accordance with article 31, no. 17 of the CIRS. Taxation will only occur 'when there is an effective onerous disposal in cash or in kind'. Taxation is only waived in the case of receipt in crypto-assets, according to article 31, no. 17 and article 10, no. 20 of the CIRS, i.e. if crypto-assets are received instead of monetary values, taxation is only envisaged in the case of the sale of crypto-assets.

In the case of opting for the simplified or accounting regime, the income obtained by residents is subject to aggregation and the progressive rates provided for in article 68 of the CIRS apply. In the case of non-residents, income is subject to a 25% tax-free rate (Article 71(4)(a) of the CIRS) and they are also obliged to submit a model 3 income declaration (Article 72(6)(a) of the CIRS).

3.2. Taxation according to category E

This category of income includes income of a 'passive' nature resulting from the simple fact that the taxpayer holds crypto-assets. This category E includes

income from staking operations (temporary holding of crypto-assets through payment of interest in the form of crypto-assets or money) or operations arising from loans of crypto-assets.

Article 5(2)(u) of the CIRS determines the forms of remuneration arising from crypto-asset transactions that generate certain economic advantages. These advantages are taxed under category E. Through platforms, users make loans of their crypto-assets and, in return, receive interest, which can be paid in crypto-assets or in cash.

There are two types of income under this category: firstly, when the crypto-assets take the form of 'crypto-assets', i.e. when there is no effective sale in cash or in kind (except crypto-assets), the remuneration is not paid in currency but in the form of crypto-assets, and the income is taxed as capital gains only when it is sold, according to article 5.11 of the CIRS. This is because, as stated in Article 5(2)(u) of the CIRS, remuneration arising from transactions relating to crypto-assets is only taxed as a capital gain when the crypto-assets are sold (Article 5(11) of the CIRS).

The remaining category E income from crypto-assets, which does not take the form of crypto-assets, is subject to taxation from the moment it falls due; is presumed to fall due; is made available to its holder; is settled; or from the date the respective amount is calculated, depending on the case (article 7.1 of the CIRS).

Income in this category is subject to taxation in its entirety and does not benefit from any specific deductions, unlike other categories of income, in which case it is considered that there are no costs associated with obtaining this income.

According to article 71(1)(a) of the CIRS, capital income is subject to definitive withholding tax at the rate of 28%. However, the income provided for in Article 5(2)(u) (income from crypto-assets) may be exempt from withholding tax under the terms of Article 101b(5). In this case, it is up to the taxpayer to declare capital income from crypto-assets.

In the case of residents, they can opt to include their income in their taxable income, which will be taxed at the progressive rates set out in Article 68 of the CIRS, in accordance with Article 71(9) of the CIRS.

As an illustrative example, we can give here an example of taxation in category E, in the case of a taxpayer decides, on 21-04-2023, through a platform, to buy 1000 cryptocurrencies at a unit price of €2, remunerated at an interest rate of 10% for a period of 180 days, with this interest being paid through the receipt of other crypto-assets. During the year 2023, the investor had an income of €200, which was transferred to the investor's bank account.

In this case, taxation is carried out in accordance with the regime set out in Article 71(1)(a) of the CIRS, in which capital income obtained in Portuguese territory is subject to a 28 per cent withholding tax. Article 101-B, no. 5 of the CIRS exempts remuneration from crypto-asset transactions from withholding tax.

The taxpayer must declare and pay the tax due on capital income from crypto-assets, in accordance with article 71(1)(a) of the CIRS, and may choose to include this income and benefit from the progressive rates provided for in article 68 of the CIRS. In this case, you can pay 28% on the amount received, i.e. €56 (200 x 28%), unless you choose to include this income in Annex E of Declaration Mod. 3.

3.3. Taxation as a capital gain according to category G

This category includes income that does not fall into other income categories, i.e. income from the sale of crypto-assets that is not considered business and professional income, capital income or property income.

Taxation of the capital gain resulting from the sale of crypto-assets (Article 10(1)(k) CIRS) is determined by the difference between the net realisation and acquisition values of the part qualified as capital income (Article 10(4)(a) CIRS). This difference is subject to a tax rate of 28 per cent, in accordance with article 72(1)(c) of the CIRS. The value to be paid is the amount resulting from applying this rate to the capital gain resulting from the difference between the sale value and the acquisition value. Instead of this rate, the investor can opt for the application of the progressive rates set out in article 68 of the CIRS, which may be more advantageous depending on their classification in the IRS brackets. By opting for aggregation in accordance with the rates in article 68, the taxpayer can carry forward, for a period of five subsequent years, the negative balance calculated in a given year, according to article 55(1)(d) of the CIRS.

Gains and losses resulting from the sale of crypto-assets held for more than 365 days are excluded from taxation, according to article 10, no. 19 of the CIRS. In the case of the sale of crypto-assets, where the consideration received consists of the receipt of crypto-assets, 'there is also no place for taxation since the acquisition value of the crypto-assets delivered is attributed to the crypto-assets received', as provided for in article 10, no. 20 of the CIRS. Gains resulting from the sale of crypto-assets held for 365 days or more are thus excluded from taxation (article 10, no. 19 of the CIRS).

This exclusion from taxation in the case of crypto-assets held for more than 365 days and in situations of receipt of other crypto-assets does not apply if the taxpayer is not resident in Portugal and resides in a country or territory where there is no international double taxation treaty, bilateral or multilateral agreement providing for the exchange of information for tax purposes (article 10, no. 21 of the CIRS). This exclusion is designed to prevent income from being transferred to tax havens.

If a resident who owns crypto-assets leaves portuguese territory, this loss of resident status is treated as a sale (article 10, no. 22 of the CIRS). It should be noted that this loss of tax resident status ('Exit Tax') is equivalent to a sale of crypto-assets as long as they do not constitute securities (article 10, no. 22 of the CIRS). If you no longer have resident status in Portugal, the income to be taxed is determined by the positive difference between the market value on the date of loss of resident status and the acquisition value, plus the amounts paid at the time of acquisition (article 43, no. 10 of the CIRS).

Let's take the case, for example, of a resident in Portugal who left the country to live in France on 27/04/2024, where he became a resident. He had a wallet of 100 crypto-assets acquired on 5/06/2023, with a unit price of €30, having paid €3,000, but whose value on 27/04/2024 is €5,000.

The capital gain of €2,000 (€5,000 - €3,000), calculated in accordance with articles 43(1) and 24(1)(e) of the CIRS, is taxed at a rate of 28%, in accordance with article 72(1)(c) of the CIRS, which represents a tax payable of €560.

When calculating the capital gain or loss, the realisation value to be considered in onerous transfers and in situations where crypto-assets are received is that which results from the applicability of the rules of article 24 of the CIRS, paragraph 1 e) of the CIRS, i.e. the market value, under competitive conditions,

with the rules of equity equivalence being applied to crypto-assets. This is the case with technology companies that pay their employees through crypto-assets. To determine the monetary value of remuneration through crypto-assets, the rules in Article 24(1) must be applied, in successive order, from point (a) to point (e), with the last rule being the most appropriate, 'market value at arm's length'.

In case of discrepancy between the declared value and the value that the Tax and Customs Authority (AT) considers to be the real value, the AT may set the new value of the property sold on the basis of the market value.

As for calculating taxable income, this corresponds to the balance of the capital gains or losses realised in the same year, according to article 43.1 of the CIRS. With the exception of NFTs, the vast majority of crypto-assets can be divided into fractions, as is the case with Bitcoin, which is divisible and whose sale can be partial, allowing the taxpayer to sell crypto-assets for different values when acquired at different times.

But in a portfolio of crypto-assets, those acquired the longest ago must be sold, according to Article 43(6)(g) of the CIRS) - FIFO (First In, First Out) method. In other words, the FIFO method must be applied to crypto-assets acquired the longest ago.

In the case of securities or crypto-assets deposited with more than one credit institution, financial company or crypto-asset service provider, each of these entities must apply its own rules, in accordance with article 43.7 of the CIRS.

It should also be noted that, when calculating capital gains or losses, the expenses incurred in the acquisition and disposal are accepted for the purposes of determining capital gains or losses, according to article 51(1)(b) of the CIRS.

If, for example, a certain taxpayer buys a quarter of the unit value of a Bitcoin (BTC) on 19-04-2023, which has a unit price of €20,000, and decides to sell that part on 21-03-2024 for €25,000 (unit price), the amount to be taxed under category G is determined by the difference between the realisation value and the acquisition value, net of the part qualifying as capital income (article 10.4.a) of the CIRS). In this case, the balance between capital gains and capital losses realised in the same year (article 43(1) of the CIRS) is €1,250 (€6,250 - €5,000).

The capital gain is subject to a rate of 28 per cent, in accordance with article 72(1)(c) of the CIRS, which corresponds to a tax payable of 350 euros (1,250

euros x 0.28). Instead of the tax-free rate, the taxpayer can opt for aggregation, with the progressive rates of article 68 of the CIRS being applied, by submitting Annex G of the Mod. 3 Declaration.

Still by way of example, if a certain taxpayer buys a BTC on 20/04/2023 for €20,000 (quoted value) and decides, on 21/09/2023, to exchange that BTC for 200 LTC, where each LTC was quoted at that day at €150, this results in a total value of €30,000. On 22/04/2024, due to cash flow needs, the taxpayer decides to sell all 200 LTC for €125, the income subject to IRS, without considering the payment of any commission, is determined by the rules of article 10, paragraphs 19 and 20 of the CIRS. In other words, in this case the exclusion rule does not apply since the crypto-assets were not held for more than 365 days, according to article 10, no. 19 of the CIRS, taking into account the fact that they were acquired (by exchange) on 21/09/2023 and sold on 22/04/2024.

When exchanging crypto-assets, there is no taxation, and the value of the crypto-assets received is attributed to the value of the crypto-assets delivered (article 10, no. 20 of the CIRS). In this case, each crypto-asset is considered to have had an acquisition cost of €100, and the market value is not taken into account here. Therefore, the gain subject to taxation, resulting from the difference between the realisation value and the acquisition value, corresponds to the value of the crypto-assets received, which is equal to the acquisition value of the crypto-assets delivered (article 10, no. 20 of the CIRS), i.e. a BTC of €20,000 is equivalent to 200 units of LTC, each unit being worth €100.

The amount of the capital gain resulting from the sale of the crypto-assets after the exchange is €5,000 (25,000 - 20,000). The capital gain, subject to a rate of 28% in accordance with Article 72(1)(c) of the CIRS, determines a tax payable of €1,400 (€5,000 x 0.28). Instead of paying this rate, the taxpayer can opt to include this income, which may result in a lower tax rate, by submitting Annex G of the Mod. 3 declaration.

4. Conclusions

With the entry into force of the State Budget for 2023, the system for taxing crypto-assets under the IRS has been approved with a view to providing a tax framework for the income resulting from virtual assets and thus overcoming the uncertainties associated with them.

The need for this taxation is a matter of fiscal justice and equity and of combating tax evasion. With the growing number of operations carried out with these virtual assets and the risk of fraud and tax evasion, the OECD and the European Union have encouraged the creation of reporting obligations and the identification of the holders of these assets.

It's a subject that still leaves many other questions open, such as the possibility of taxation in other income categories, the location of operations, the type of crypto-assets and the applicable rates. As this is a very recent regime, it is natural that binding information and additional clarifications will be issued by the AT in order to resolve any doubts about the interpretation and application of the legislation.

Given the fact that this is a very recent issue, that there is some lack of knowledge on this matter, that the legislation on the taxation of virtual assets is difficult to understand, and that there is no clear regulation and clarification from the AT on this issue, it is natural that the current legislation will evolve to fill the gaps that arise and future challenges.

It's a topic that raises many concerns for taxpayers and the tax authorities, who are faced with uncertainties and insecurities regarding the volatility of virtual assets and the taxation regime for income from crypto-asset transactions. The world of crypto-assets is constantly evolving and raises various concerns in terms of regulation and taxation. These are issues that need to be addressed in order to provide some security to taxpayers and investors and guarantee their positive impact on the economic development of countries.

References

- Adhami, S., Giudici, G., Martinazzi, S. (2018). Why Do Businesses Go Crypto? An Empirical Analysis of Initial Coin Offerings. *Journal of Economics and Business, Forthcoming*. Disponível em: <https://ssrn.com/abstract=3046209> or <http://dx.doi.org/10.2139/ssrn.3046209>.
- Antunes, J. (2022). *Criptomoedas - Aspectos contabilísticos e fiscais*, Ordem dos contabilistas Certificados. Disponível em: <https://ccclix.occ.pt/wp-content/uploads/2022/09/CUR02522-Manual-Criptomoedas.pdf>
- AT (2022). Relatório do grupo de trabalho – Tributação dos Criptoativos. Disponível em <https://app.parlamento.pt/webutils/docs/doc.pdf?path=6148523063484d364c79>

- 3968636d356c6443397a6158526c63793959566b786c5a79394562324e31625756756447397a554756795a3356756447467a556d5678645756796157316c626e527663793878553077764d445930595467354e4467744d3259354f5330304e6a55304c574a6b5a4459744d5759354d6d55304d54426d5957557a4c6e426b5a673d3d&fich=064a8948-3f99-4654-bdd6-1f92e410fae3.pdf&Inline=true
- Banco de Portugal (2013). Esclarecimento do Banco de Portugal sobre Bitcoin. Disponível em: <https://www.bportugal.pt/comunicado/esclarecimento-do-banco-de-portugal-sobre-bitcoin>
- ESMA (2019). Initial Coin Offerings and Crypto-Assets. Disponível em: https://www.esma.europa.eu/sites/default/files/library/esma50-1571391_crypto_advice.pdf
- Graf, KS. (2016). Sobre as Origens do Bitcoin: Estágios da Evolução Monetária – Parte II, disponível em: <https://misesjournal.org.br/misesjournal/article/view/827/511>
- Luz, J. (2021). Regulação e criptomoedas. Dissertação de mestrado, Universidade de Lisboa. Repositório da Universidade de Lisboa. Disponível em: <http://hdl.handle.net/10451/48058>.
- Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System, whitepaper, disponível em <https://bitcoin.org/bitcoin.pdf>
- OECD (2022). Crypto-Asset Reporting Framework and Amendments to the Common Reporting Standard, OECD, Paris, <https://www.oecd.org/tax/exchange-of-tax-information/crypto-asset-reporting-framework-and-amendments-to-the-common-reporting-standard.pdf>
- Rodrigues, V. (2019). A tecnologia blockchain: criptomoedas e tokens de investimento. Desafios jurídico-fiscais. Dissertação de mestrado, Universidade de Coimbra. Disponível em: <http://hdl.handle.net/10316/90274>.

Session – “The Future of Business, Technology & Society”

Chair: Cristina Cunha

Attributing Anthropomorphic Characteristics to Customer Service Chatbots

Matilde Simão Correia Nunes. Faculdade de Ciências Sociais e Humanas,
Universidade Nova de Lisboa, Portugal. matilde.c.nunes@gmail.com

Abstract

Purpose: The objective of this study is to investigate the impact that the attribution of anthropomorphic characteristics to text-based chatbots has on the perception of the conversational agent, on customer satisfaction and on the reuse intention of the interface, in the context of customer service in e-commerce.

Methodology: A conceptual model and an empirical study were developed through an experimental design of a single independent variable (anthropomorphic chatbot vs. non-anthropomorphic chatbot). Data was collected through an online questionnaire. A quantitative methodology was applied to a sample of 126 participants. For the analysis of the results, it was used the statistical analysis software Smart PLS 4.

Results: The results reveal that the anthropomorphizing of chatbots positively impacts consumer satisfaction, indirectly through its positive effect on social presence and trust. It was confirmed that consumer satisfaction positively influences the intention to reuse chatbots, but the effects of anthropomorphism indicators do not significantly influence the reuse intention.

Research limitations: This study presents pertinent conclusions, but there are some limitations to the research, namely the insufficient sample size to generalize the results. In addition, it is assumed that there may be other variables, which are not included in this conceptual model, that have an indirect impact on the results. The design of the

stimulus manipulation is also limited to the anthropomorphic characteristics identified in the literature review to date.

Originality: This study presents an original model in which the effect of anthropomorphism on the intention to reuse text-based chatbots is tested through social presence, trust and satisfaction, in order to create and analyze a sequence of relationships between concepts and variables.

Keywords: *Chatbots; Anthropomorphism; Customer experience; Reuse intention; Customer service*

1. Introduction

Due to digital transformation and technological advances, organizations are increasingly adopting the format of technology-mediated interactions, including artificial intelligence, for their communication channels (Ischen et al., 2020). Chat systems have become very popular marketing tools for organizations (Lew et al., 2018), with a significant increase in the adoption of chatbots in the organizational environment (Gartner, 2020). This trend is due to the many benefits for organizations that make chatbots a value proposition, including a 30% reduction in customer service expenses (IBM Corporation, 2018).

On the other hand, consumers tend to prefer a human, natural and personal service, which is something that not all chatbots can offer to the consumer experience (Accenture, 2018). One can observe a discrepancy between the preferences of consumers and organizations. The literature suggests that incorporating anthropomorphic characteristics into customer service chatbots has a significant impact on the consumer experience with organizations, as it promotes a more natural interaction similar to that expected from human service (Araujo, 2018; Gnewuch et al., 2018).

This study aims to analyze the impact that attributing anthropomorphic characteristics to text-based chatbots has on the perception of the conversational agent, on consumer satisfaction and on the intention to reuse the interface. To this end, a review of concepts such as anthropomorphism, social presence, trust, previous consumer experience, consumer satisfaction and intention to reuse is planned.

In summary, this study addresses the following question: How does the attribution of anthropomorphic characteristics in text-based chatbots influence the consumer's perception of the conversational agent and their intention to reuse the interface in the context of customer service?

2. Literature Review

2.1. Chatbots as social agents

A chatbot is defined by Griol et al. (2013) as a type of software that processes natural and human language as input and provides output in the same language, so that the user interacts in a conversation with the computer system (Ischen et al., 2020, p. 615). The recent development of chatbots is due to advances in the fields of artificial intelligence technology and natural language processing (Adamopoulou & Moussiades, 2020; Lester et al., 2004).

Chatbots are classified as a social agent technology, being computer programs capable of operating intelligent functions and interacting with users in a social way (Adamopoulou & Moussiades, 2020; Skalski & Tamborini, 2007). Since the performance of chatbots is close to human behavior, the “Computers are social actors” (CASA) paradigm (Nass et al., 1994) is relevant. This model suggests that when it comes to interactions between humans and computers, humans tend

to unconsciously react in a similar way to the behavior of interpersonal communication (Feine et al., 2019; Nass et al., 1994). Chatbots can therefore generate the perception that the user is interacting with a brand or organization rather than a system, with the aim of creating communication channels with the company that are more personal and similar to interaction with a human (Ischen et al., 2020; Skalski & Tamborini, 2007).

2.2. Anthropomorphism in chatbots

The concept of anthropomorphism, defined by Epley et al. (2007), refers to the attribution of characteristics and/or mental states specific to human behavior to real or imagined non-human agents. Currently, this concept is associated with the specific attribution of human characteristics to robots, computers and any technological artifact, as it can be seen in the studies by Kim & Sundar (2012), Lee et al. (2015) and Qiu & Benbasat (2010).

Anthropomorphism is present in conversational agents in the form of human and social indicators in order to replicate human appearance, personality and natural language (Araujo, 2018; Go & Sundar, 2019). The authors Araújo (2018) and Gnewuch et al. (2018) consider that the presence of these indicators in customer service chatbots can have a positive impact on the perception of being with another human in the artificial environment, that is, the perception of social presence. In addition, several authors focus on different types of social indicators that are specific and applicable to the context of chatbots and customer service chatbots, concluding that they increase the perception of social presence in the interaction between the user and the conversational agent (Adam et al., 2021; Araujo, 2018; Go & Sundar, 2019; Ischen et al., 2020; Lee et al., 2015; Schanke et al., 2021).

H1: The presence of anthropomorphism (ANT) in text-based customer service chatbots has a positive effect on the perception of social presence (SP).

Trust is reported to be an essential element to consider in interactions between humans and information technological systems (Przegalinska et al., 2019; Silva et al., 2023). Several authors (Følstad et al., 2018; Mozafari et al., 2022; Przegalinska et al., 2019; Toader et al., 2019) point out that in the context of customer service, interfaces designed to be perceived as more human and social promote their users' trust in the interface since humans tend to approach artificial agents based on their preconceptions about humans and the feeling of familiarity (Lee et al., 2015). Moreover, Bauman & Bachmann (2017) consider the perception of human sociability to be essential for creating trust in online environments. Thus, social factors, such as social presence, may result in a feeling of trust in customer service chatbots.

H2: The perception of social presence in text-based customer service chatbots has a positive effect on the consumer's level of trust (T) in the interface.

This study analyzes a type of service in online environments that tends to arouse feelings of insecurity and distrust in users, which negatively impacts the acceptance and adoption of these technologies and consumer decisions (Bauman & Bachmann, 2017; Silva et al., 2023). Bauman & Bachmann (2017) consider that promoting trust in interfaces is essential in order to reduce the negative attitudes reported towards technologies and, consequently, brands. The study by Silva et al. (2023), carried out in the specific context of chatbots, reveals that the variable of trust positively impacts user satisfaction in relation to the experience with the interface. Furthermore, Beyari (2020) states that increasing consumer trust in e-commerce means leads to a consequent increase in consumer satisfaction with their consumer experience. Hence, it is suggested

that greater trust in a customer service chatbot could positively influence the result of user and consumer satisfaction.

H3: Trust in the use of a text-based customer service chatbot has a positive effect on consumer satisfaction (SAT) with this interface.

The consumer's previous experience, in the context of using technology, relates to the consumer's familiarity with the technology used, acquired through learning, accumulated experience and habituation (Alba & Hutchinson, 1987; Venkatesh et al., 2012). In addition, Homburg & Giering (2001) consider that satisfaction results from the accumulated set of various opinions regarding all the consumer's individual experiences. Lemon & Verhoef (2016) and McColl-Kennedy et al. (2019) mention that a consumer's accumulated and past experience can have an impact on the outcome of consumer satisfaction, with Lemon & Verhoef (2016) and Velázquez et al. (2010) also specifically highlighting the level of accumulated experience as an influencing factor in the satisfaction dimension. In the context of chatbots, although the relationship established and mentioned is between previous experience and the intention to reuse, Gnewuch et al. (2022) allude to the importance of the formation of expectations in the future intention to reuse. Thus, it can be conjectured that a user's or consumer's previous positive experience also has a positive influence on creating satisfaction.

H4: Positive prior consumer experience (PE) positively influences satisfaction with interface performance.

Lastly, reuse intention is defined by Choi & Sun (2016) as the likelihood of a consumer having a subjective preference to use a particular service again rather than a similar alternative. Reuse intention is a determining attitude in the field of studying post-adoption behavior of information systems in technological contexts,

including in the context of e-commerce (Li & Shang, 2020), so it is assumed to be the intention to reuse an online service or technological interface. Several authors, such as Oliver (1980) and Wang et al. (2020), consider satisfaction to be an essential element in defining consumers' future attitudes, and Choi & Sun (2016) refer to the direct relationship between customer dissatisfaction with a service and the decreased likelihood of reusing it. Furthermore, Bhattacharjee (2001) and Silva et al. (2023) revealed studies focused on the use of technologies and chatbots, which argue that satisfaction positively promotes the intention of the consumer/user to reuse the interface.

H5: Customer satisfaction has a positive effect on the intention to reuse (IR) text-based customer service chatbots.

3. Methodology

3.1. Overview of experimental design

The research questions and hypotheses were tested with a between-subject one-way experimental design (anthropomorphic chatbot vs. non-anthropomorphic chatbot). Participants (older than 18 years old) in the experience answered an online questionnaire which first included questions about demographics and previous experience with chatbots. Then participants were instructed to interact with a chatbot on Facebook Messenger through a link under the scenario of returning an online order from a fictitious brand, *Steps*. After the interaction, participants were instructed to return to the questionnaire to complete a second set of questions regarding this experience with the chatbot, focusing on the study dependent variables - social presence, trust, satisfaction, and reuse intention. Questions about the perception of anthropomorphism of the chatbot were

addressed as a validation mechanism to ensure the effectiveness of the experience. Participants were randomly assigned to each condition of the study, creating an experimental group (anthropomorphic chatbot) and a control group (non-anthropomorphic chatbot).

3.2. Stimuli

To create the experimental conditions, two text-based chatbots were designed using the ManyChat platform, based on the methodological models of Araujo (2018) and Sidlauskiene et al. (2018).

Anthropomorphic chatbot (AC): This agent was designed to use informal language, pronouns in the first person singular, mentioning of the participant's first name and reference to previously written answers. It included emoticons and emotional expressions. The agent had a human first name (Rui) and started the conversation with human dialog expressions such as “Hello”. Finally, we added the display of ellipsis (...) as a message writing indicator and a purposeful message sending delay of 2.3 seconds, based on the methodology of the study by Gnewuch et al. (2018).

Non-anthropomorphic chatbot (NAC): The language used is formal, associated with computer language and impersonal, excluding any indicator that was attributed to the other chatbot. A non-human name was included (ChatAssistant) and the dialog was started and ended with the expressions “Start” and “End” associated with interactions between humans and systems. The display of ellipsis was eliminated and messages were sent immediately.

3.3. Participants

A total of 159 participants took part in the experiment and were recruited through snowball and convenience sampling methods. The questionnaire link was shared

on several mainstream social media and through QR code pamphlets. Only 126 responses were considered valid, from which 68 were exposed to the AC and 58 were exposed to the NAC. The sample was 59,52% females and the average age was of 37,55 years (SD = 15,13). As to the sample's previous experience with chatbots, it was observed that most had limited familiarity and experience with the use of this interface.

4. Results

4.1. Manipulation check

Items related to the anthropomorphism variable were used as manipulation check for the experiment. This manipulation check revealed that the experimental manipulation of the anthropomorphism of the conversational agent was effective: participants exposed to the AC judged its behavior as more human and social (M= 4,240; SD= 0,995) than participants exposed to the NAC (M= 3,178; SD= 1,313).

4.2. Hypotheses testing

The hypotheses were tested using the partial least squares structural equation modeling tool (PLS-SEM). Smart PLS 4 statistical software was used, with 5000 subsamples being resampled using the Bootstrapping method. Multigroup analysis was used to compare the two groups in the sample (anthropomorphic chatbot – AC- vs. non-anthropomorphic chatbot - NAC).

Table I: Direct Effects of Structural Model

	AC	NAC	AC	NAC	AC vs. NAC

Hypothesis	β	(β)	<i>t-Student</i>	<i>t-Student</i>	Difference
H1: ANT $\rightarrow$ SP	0,565	0,619	7,606	7,972	-0,054
H2: SP $\rightarrow$ T	0,709	0,246	11,555	2,069	0,463
H3: T $\rightarrow$ SAT	0,735	0,368	8,821	2,784	0,367
H4: PE $\rightarrow$ SAT	-0,079	0,236	0,868	2,199	-0,315
H5: SAT $\rightarrow$ IR	0,787	0,713	14,8	10,11	0,074

Source: Own Elaboration

In Table 1, the results present evidence that anthropomorphism has a positive effect on social presence (H1), both in the context of the AC ($\beta = 0.565$; $t > 1.96$) and in the context of the NAC ($\beta = 0.619$; $t > 1.96$). It should be noted that although the difference between the β values is not very pronounced (diff = - 0.054), the relationship between these variables is greater in the non-anthropomorphic environment than in the anthropomorphic environment ($\beta = 0.565 < \beta = 0.619$).

For hypothesis H2, it was found that social presence has a positive effect on trust in the case of the AC ($\beta = 0.709$; $t > 1.96$) and in the case of the NAC ($\beta = 0.246$; $t > 1.96$). There was a significant difference between the values observed in each environment (diff = 0.463). The relationship between social presence and trust is significantly stronger in the anthropomorphic environment than in the non-anthropomorphic environment ($\beta = 0.709 > \beta = 0.246$).

The observed effect of trust on satisfaction (H3) is positive for both the AC ($\beta = 0.735$; $t > 1.96$) and the NAC ($\beta = 0.368$; $t > 1.96$). The effect of trust on satisfaction is stronger and the relationship is more significant in anthropomorphic environments than in non-anthropomorphic environments (diff = 0.367; $\beta = 0.735 > \beta = 0.368$).

For hypothesis H4, there was a positive effect between users' positive past experience and their levels of satisfaction in non-anthropomorphic environments ($\beta = 0.236$; $t > 1.96$). However, in anthropomorphic environments, hypothesis H4 is not corroborated, as this relationship did not show adequate statistical significance ($t = 0.868$; $t < 1.96$) and the regression beta value suggests a negative effect of positive past experience on satisfaction, contrary to the hypothesis ($\beta = -0.079$; $t < 1.96$).

In the anthropomorphic context, satisfaction was found to have a positive effect on the intention to reuse (H5) and there is a strong and statistically significant relationship between these variables ($\beta = 0.787$; $t > 1.96$). A similar effect was observed in the non-anthropomorphic context ($\beta = 0.713$; $t > 1.96$). The results show no significant difference in effect between the conditions tested (diff = 0.074).

5. Discussion

The results of this research have provided a number of conclusions.

Firstly, this study confirmed that the presence of anthropomorphic indicators increases the perception of anthropomorphism of the artificial conversational agent. As reviewed (Adam et al., 2021; Araujo, 2018; Go & Sundar, 2019; Lee et al., 2015), this conclusion is revealed by the fact that the AC caused a greater perception of anthropomorphism in its users than the NAC. Furthermore, the levels of social presence observed are also higher in the case of human indicators, which suggests that users, when faced with an anthropomorphized online context, perceive the interface as human and social and respond to it socially, as argued in the CASA paradigm (Nass et al., 1994). Interestingly, it is

suggested that the absence of human indicators has a greater impact on the result of low perceived social presence than the presence of these in creating greater perceived social presence.

The results of this study confirm that, as suggested by Bauman & Bachmann (2017), Beyari (2020) and Silva et al. (2023), when considering the isolated effect of anthropomorphism on satisfaction, anthropomorphism positively affects social presence and trust in customer service chatbots, which also leads to greater satisfaction with the interaction. However, in this study, satisfaction is also influenced by the consumer previous experience. One intriguing finding of this study is that when anthropomorphic characteristics are attributed, prior experience has no influence on the outcome of customer satisfaction; in turn, in its absence, the prior experience dimension has some positive effect on satisfaction. Thus, it is suggested that customer satisfaction is influenced by different variables at distinct levels depending on the combination of variables considered.

Lastly, the results support the hypothesis that greater satisfaction promotes greater intention to reuse, as argued by Bhattacharjee (2001), Choi & Sun (2016) and Silva et al. (2023). However, no relevant distinctions are observed in the relationship between satisfaction and the intention to reuse, taking into account the level of anthropomorphization of the context. Contrary to what was expected and suggested by Bellur & Sundar (2017) and Go & Sundar (2019), the degree of motivation to reuse chatbots with anthropomorphic indicators does not appear to be higher than in the case of chatbots without these characteristics.

6. Conclusion

The findings of this study have important implications for companies that use or are considering using chatbots to provide services to their customers.

Chatbots, as a means of communication between consumers and organizations, bring the opportunity to unite the needs of both parties. Companies wishing to humanize their technology-operated services such as customer service chatbots in order to respond to their customers' preferences should consider assigning human indicators in the design of interfaces. Thus, implementing chatbots allows companies to benefit from opportunities such as promoting labour productivity and reducing business costs and also improves consumers experience with the brand.

This study also presents itself as a relevant starting point for future research to investigate more robustly the influence of other variables on satisfaction with current experiences and the intention to reuse customer service chatbots, namely the role of previous experience of using information systems.

From a theoretical perspective, it is suggested that this area of knowledge would benefit from empirical studies on the effect of isolated anthropomorphic indicators on user behavior and attitudes. As a result, in the practical applicability of designing chatbots for organizations, companies will have more information on how to design their interface to suit the specific needs of their consumers.

References

- Accenture. (2018). *Chatbots are Here to Stay So what are you waiting for?*
- Adam, M., Wessel, M., & Benlian, A. (2021). AI-based chatbots in customer service and their effects on user compliance. *Electronic Markets*, 31, 427–445. <https://doi.org/10.1007/s12525-020-00414-7>

- Adamopoulou, E., & Moussiades, L. (2020). Chatbots: History, technology, and applications. *Machine Learning with Applications*, 2, 100006. <https://doi.org/10.1016/j.mlwa.2020.100006>
- Alba, J. W., & Hutchinson, J. W. (1987). Dimensions of Consumer Expertise. *Journal of Consumer Research*, 13(4), 411–454. <https://doi.org/10.1086/209080>
- Araújo, T. (2018). Living up to the chatbot hype: The influence of anthropomorphic design cues and communicative agency framing on conversational agent and company perceptions. *Computers in Human Behavior*, 85, 183-189. <https://doi.org/10.1016/j.chb.2018.03.051>
- Bauman, A., & Bachmann, R. (2017). Online Consumer Trust: Trends in Research. *Journal Technology Management Innovation*, 12(2), 68-79.
- Bellur, S., & Sundar, S. S. (2017). Talking Health With a Machine: How Does Message Interactivity Affect Attitudes and Cognitions? *Human Communication Research*, 43(1), 25–53. <https://doi.org/10.1111/hcre.12094>
- Beyari, H. (2020). The role of trust and its impacts on consumer satisfaction in the context of social commerce. *Journal for Research on Business and Social Science*, 3(9). <https://www.researchgate.net/publication/344457974>
- Bhattacharjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly*, 25(3), 351-370.
- Choi, Y., & Sun, L. (2016). Reuse Intention of Third-Party Online Payments: A focus on the sustainable factors of Alipay. *Sustainability*, 8(2), 1–15. <https://doi.org/10.3390/su8020147>
- Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On Seeing Human: A Three-Factor Theory of Anthropomorphism. *Psychological Review*, 114(4), 864–886. <https://doi.org/10.1037/0033-295X.114.4.864>
- Feine, J., Gnewuch, U., Morana, S., & Maedche, A. (2019). A Taxonomy of Social Cues for Conversational Agents. *International Journal of Human-Computer Studies*, 132, 138–161. <https://doi.org/10.1016/j.ijhcs.2019.07.009>
- Følstad, A., Nordheim, C. B., & Bjørkli, C. A. (2018). What makes users trust a chatbot for customer service? An exploratory interview study. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 11193 LNCS, 194–208. https://doi.org/10.1007/978-3-030-01437-7_16
- Gartner. (2020). *How to Set Up and Run a Conversational AI Initiative for Customer Service During the COVID-19 Pandemic*. <https://www.gartner.com/en/documents/3985872>
- Gnewuch, U., Morana, S., Adam, M. T. P., & Maedche, A. (2022). Opposing Effects of Response Time in Human–Chatbot Interaction: The Moderating Role of Prior Experience. *Business and Information Systems Engineering*, 64(6), 773–791. <https://doi.org/10.1007/s12599-022-00755-x>
- Gnewuch, U., Morana, S., & Maedche, A. (2018, December 13). “The Chatbot is typing ...” - The Role of Typing Indicators in Human-Chatbot Interaction. *Proceedings of the Sixteenth Annual Pre-ICIS Workshop on HCI Research in MIS*. <http://ksri.kit.edu>

- Go, E., & Sundar, S. S. (2019). Humanizing chatbots: The effects of visual, identity and conversational cues on humanness perceptions. *Computers in Human Behavior*, 97, 304–316. <https://doi.org/10.1016/j.chb.2019.01.020>
- Homburg, C., & Giering, A. (2001). Personal characteristics as moderators of the relationship between customer satisfaction and loyalty - An empirical analysis. *Psychology and Marketing*, 18(1), 43–66. [https://doi.org/10.1002/1520-6793\(200101\)18:1<43::AID-MAR3>3.0.CO;2-I](https://doi.org/10.1002/1520-6793(200101)18:1<43::AID-MAR3>3.0.CO;2-I)
- IBM Corporation. (2018). *Digital customer care in the age of AI*. <https://www.ibm.com/downloads/cas/GQDGPZJE>
- Ischen, C., Araujo, T., van Noort, G., Voorveld, H., & Smit, E. (2020). “I Am Here to Assist You Today”: The Role of Entity, Interactivity and Experiential Perceptions in Chatbot Persuasion. *Journal of Broadcasting and Electronic Media*, 64(4), 615–639. <https://doi.org/10.1080/08838151.2020.1834297>
- Kim, Y., & Sundar, S. S. (2012). Anthropomorphism of computers: Is it mindful or mindless? *Computers in Human Behavior*, 28(1), 241–250. <https://doi.org/10.1016/j.chb.2011.09.006>
- Lee, J. G., Kim, K. J., Lee, S., & Shin, D. H. (2015). Can Autonomous Vehicles Be Safe and Trustworthy? Effects of Appearance and Autonomy of Unmanned Driving Systems. *International Journal of Human-Computer Interaction*, 31(10), 682–691. <https://doi.org/10.1080/10447318.2015.1070547>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience throughout the Customer Journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Lester, J., Branting, K., & Mott, B. (2004). Conversational Agents. In *The Practical Handbook of Internet Computing*.
- Lew, Z., Walther, J. B., Pang, A., & Shin, W. (2018). Interactivity in online chat: Conversational contingency and response latency in computer-mediated communication. *Journal of Computer-Mediated Communication*, 23(4), 201–221. <https://doi.org/10.1093/jcmc/zmy009>
- Li, Y., & Shang, H. (2020). Service quality, perceived value, and citizens' continuous-use intention regarding e-government: Empirical evidence from China. *Information and Management*, 57(3). <https://doi.org/10.1016/j.im.2019.103197>
- McColl-Kennedy, J. R., Zaki, M., Lemon, K. N., Urmetzer, F., & Neely, A. (2019). Gaining Customer Experience Insights That Matter. *Journal of Service Research*, 22(1), 8–26. <https://doi.org/10.1177/1094670518812182>
- Mozafari, N., Weiger, W. H., & Hammerschmidt, M. (2022). Trust me, I'm a bot – repercussions of chatbot disclosure in different service frontline settings. *Journal of Service Management*, 33(2), 221–245. <https://doi.org/10.1108/JOSM-10-2020-0380>
- Nass, C., Steuer, J., & Tauber, E. R. (1994). Computer are Social Actors. *Conference on Human Factors in Computing Systems - Proceedings*, 72–78. <https://doi.org/10.1145/259963.260288>

- Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. In *Source: Journal of Marketing Research* (Vol. 17, Issue 4).
- Przegalinska, A., Ciechanowski, L., Stroz, A., Gloor, P., & Mazurek, G. (2019). In bot we trust: A new methodology of chatbot performance measures. *Business Horizons*, 62(6), 785–797. <https://doi.org/10.1016/j.bushor.2019.08.005>
- Qiu, L., & Benbasat, I. (2010). A study of demographic embodiments of product recommendation agents in electronic commerce. *International Journal of Human Computer Studies*, 68(10), 669–688. <https://doi.org/10.1016/j.ijhcs.2010.05.005>
- Schanke, S., Burtch, G., & Ray, G. (2021). Estimating the Impact of “Humanizing” Customer Service Chatbots. *Information Systems Research*. <https://www.gartner.com/smarterwithgartner/gartner-predicts-a-virtual-world-of-exponential-change/>
- Silva, F. A., Shojaei, A. S., & Barbosa, B. (2023). Chatbot-Based Services: A Study on Customers’ Reuse Intention. *Journal of Theoretical and Applied Electronic Commerce Research*, 18(1), 457–474. <https://doi.org/10.3390/jtaer18010024>
- Skalski, P., & Tamborini, R. (2007). The Role of Social Presence in Interactive Agent-Based Persuasion. *Media Psychology*, 10(3), 385–413. <https://doi.org/10.1080/15213260701533102>
- Toader, D.-C., Boca, G., Toader, R., Măcelaru, M., Toader, C., Ighian, D., & Rădulescu, A. T. (2019). The Effect of Social Presence and Chatbot Errors on Trust. *Sustainability*, 12(1), 256. <https://doi.org/10.3390/su12010256>
- Velázquez, B. M., Blasco, M. F., Saura, I. G., & Contrí, G. B. (2010). Causes for complaining behaviour intentions: The moderator effect of previous customer experience of the restaurant. *Journal of Services Marketing*, 24(7), 532–545. <https://doi.org/10.1108/08876041011081087>
- Venkatesh, V., Walton, S. M., & Thong, J. Y. L. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36(1), 157–178. <http://about.jstor.org/terms>
- Wang, Y., Zhang, Z., Zhu, M., & Wang, H. (2020). The Impact of Service Quality and Customer Satisfaction on Reuse Intention in Urban Rail Transit in Tianjin, China. *SAGE Open*, 10(1). <https://doi.org/10.1177/2158244019898803>

Bibliometrics of research in the field of Data Envelopment Analysis (DEA) in the military and defense industry

Carla Vivas. *Military University Institute, Research Centre of the Military University Institute, Portugal. vivas.cir@ium.pt*

Abstract

Purpose: This study aims to visualize and analyze the global Data Envelopment Analysis (DEA) in the military and defense industry research field.

Methodology: Web of Science (WoS) was the selected database where articles were collected according to a predetermined selection criterion. Representing results of the search, statistics and frequencies visualization will be performed in terms of countries, cited literature and journals. VOSviewer will be used for information and to represent keywords co-occurrences, evolutionary trends, and cluster analysis.

Results: A set of 47 papers, published by 113 authors from 85 institutions in 20 countries and 15 research areas was reviewed. These papers were published from 1994 to 2024, with a high concentration in a small number of countries (EUA and Taiwan). The most representative area of research is "Business Economics". In terms, the 4 clusters were High-frequency keywords "growth", "impact", "research and development", "benchmarking", "corporate social responsibility", "bootstrap", "frontier models" and "Malmquist index".

Research limitations: Since the sample data of this study is extracted only from the Web of Science database, there is a risk of insufficient literature inclusion.

Originality: The analysis of Decision-Making Units efficiency in military and defense organizations is still under investigation. The use of the DEA tool to provide support in the decision-making process in these specific organizations opens a field for research with high impact on increasing efficiency at different levels. This study is intended to take an important step towards understanding important research works in this area.

Keywords: *Data Envelopment Analysis; Military; Defense Industry; VOSviewer; Bibliometrics.*

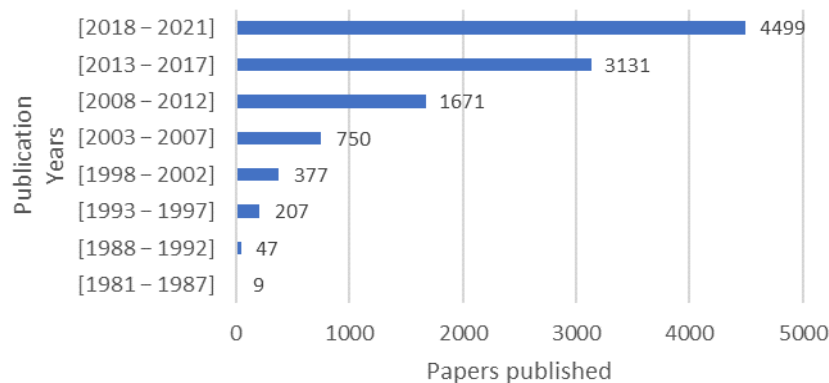
1. Introduction

The current international context has boosted the economic debate on defense investments and spending, giving special interest and research opportunities. The imperative of optimizing performance in the context of high restriction of human, material and financial resources within the Armed Forces and Defense proves to be a huge challenge, as well as the identification of models and methodologies that support the evaluation and selection of investment options, contributing to the efficiency of military expenditures. The European Union has been struggling with the search for more efficient solutions, evaluating procurement models, R&D expenditure, and competitiveness of its growing defense industry (European Defense Agency, 2023); (Schulze-Marmeling et al., 2022). Data Envelopment Analysis (DEA) (Charnes et al., 1978) can be seen as a tool to support such mission, designed to measure and evaluate the effectiveness and efficiency of the state and government, as well as non-profit and commercial organizations, units, and subunits, including military and defense organizations (Solana-Ibáñez et al., 2020). However, the fertility of DEA research in a large spectrum, in military and defense spheres is limited (Solana-Ibáñez et al., 2020). According to Hanson (2016), the reasons that stand out as limitations are: i) the nature of the military output (complex modelling and measuring); ii) the heterogeneity of military units (small populations); and iii) restricted access to data. In this sense, this study aims to analyze articles that have recently been published in WoS in the field of Data Envelopment Analysis (DEA) in the military and defense industry research field.

2. Literature Review

Data Envelopment Analysis (DEA) is an efficiency analysis method for decision-making, originally introduced by Charnes et al. (1978) as a method of mathematical programming optimization to generalize the input/output measure of technical efficiency (Farrell, 1957) for each Decision-Making Unit (DMU). A DMU can be defined as an autonomous system, which transforms a set of inputs into a set of outputs and can designate companies, administrative units, people or even airplanes. Due to its lack of assumptions (non-parametric method), its ability to benchmark multi-dimensional inputs and outputs and computational simplicity, DEA is one of the most widely adopted techniques to measure efficiency (Jung et al., 2023). DEA helps decision-makers by i) determining an efficiency score; ii) setting target values for input and output; iii) identifying the nature of returns to scale, and iv) identifying a set of benchmarks (Huguenin, 2012). Since its appearance, the growth of the area has undoubtedly been exponential (Solana Ibáñez et al., 2020a), covering a multitude of areas, with applications in for-profit and/or non-profit organizations. Of note are the systematic review studies by Boussofianne et al. (1991), Camanho et al. (2023), Emrouznejad & Yang (2018) and Zhou et al. (2008). It stands out in the study of Emrouznejad & Yang (2018), covering a review of DEA in the period 1978–2016. These authors identified 10300 DEA-related journal articles and 11961 DEA authors, with most of the articles published in the following four journals: European Journal of Operational Research, Journal of the Operational Research Society, Journal of Productivity Analysis, and Omega. Panwar et al. (2022) in their review study, identified a constantly rising number of papers that cover the DEA area between 1980 and 2021 (Figure 1), with W.W. Cooper as the most cited author, with around 40000 citations.

Figure 1: DEA publications 1981-2021



Source: Based on Panwar et al. (2022).

These numbers are mostly due to the applicability of DEA to diverse domains, such as banking, education, and health sector (as leading sectors of DEA research), transportation, tourism, finance, sports, and many more, and the “hybridization” with other methods, like machine learning, due to big data availability, remote sensing and increase complexity in real-world problems Panwar et al. (2022).

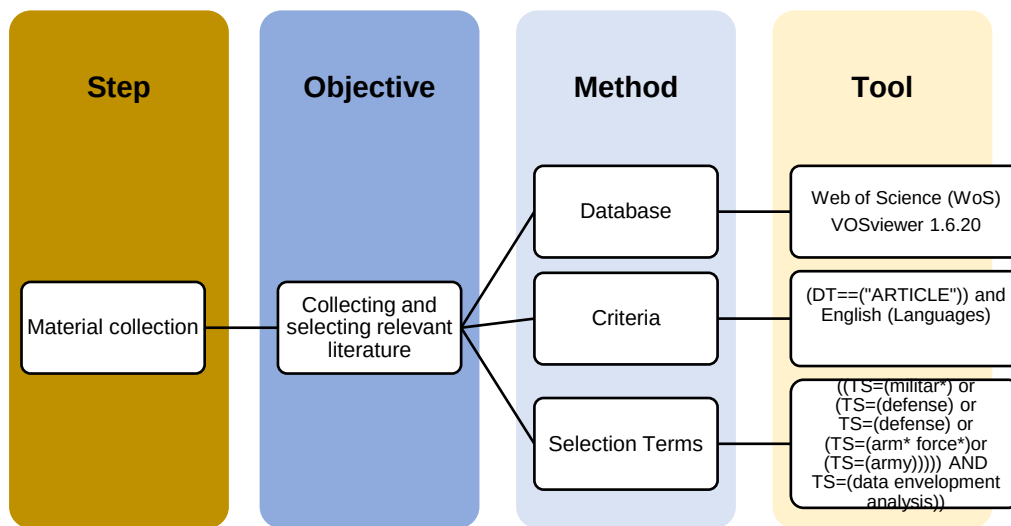
DEA in the military and defense sector have its origin in the work of Charnes et al. (1984) on recruitment and maintenance. Despite initial expectations, there has been unexpressive development in the area and interest has been focused on a narrow range of specific defense activities (Solana Ibáñez et al., 2020b). Naumovski et al. (2017) analyzed 16 studies published between 1983 and 2016 and identified a special focus on military maintenance functions, especially in the US Army and Asian countries like Taiwan, China, and Korea. The main DEA approach in these studies was the Malmquist productivity and Window analysis.

Solana Ibáñez et al. (2020a) analysed 30 papers and identified 3 groups of subthemes: defence industry, military planning, and resource management. Also, Hanson (2012) identified investigation around various support functions like maintenance and recruitment, and arguments that operational units, the core area of defense industry, could benefit in developing efficiency research, namely applying DEA. The application of DEA in military operations faces some challenges, like its complexity, security and confidentiality issues, the dynamic nature of military environments and the subjectivity of input/output selection (Hanson, 2012). Integration of DEA with Machine Learning algorithms and Fuzzy DEA were pointed out by Panwar et al. (2022) as methods that better account for these complex conditions.

3. Methodology

Based on the Web of Science (WoS) database, articles were collected according to the selection criteria identified in Figure 2. VOSviewer 1.6.20 was used for information visualization and to represent co-occurrences, evolutionary trends, and cluster analysis. This mapping tool has been extensively utilized in scientific research as a visual analysis of the literature (Jia & Mustafa, 2023). According to the identified criteria, 82 valid sample articles were obtained. After reading the abstracts, 35 were excluded (not in the military or defense field).

Figure 2: Research methodology



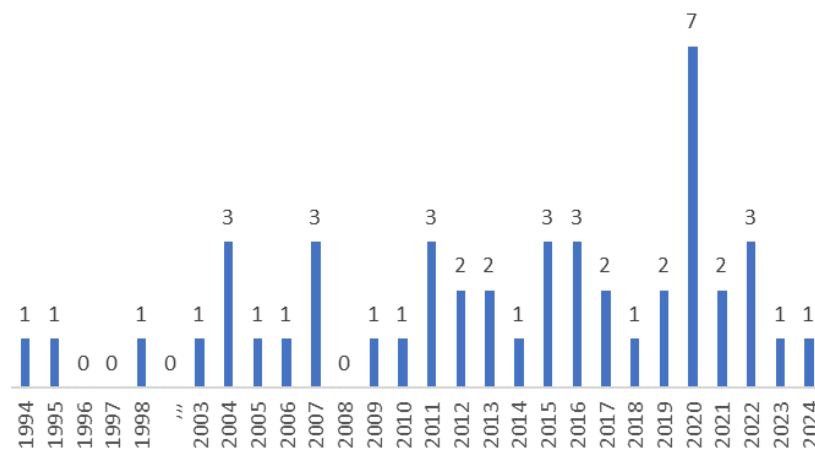
Source: Own Elaboration

4. Results and discussion

The sample for this study consisted of 47 papers published by 113 authors from 85 institutions in 20 countries and 15 research areas.

Figure 3 illustrates the annual number of publications on the WoS related to DEA in the military and defense industry.

Figure 3: Distribution map of literature on DEA in the military and defense industry

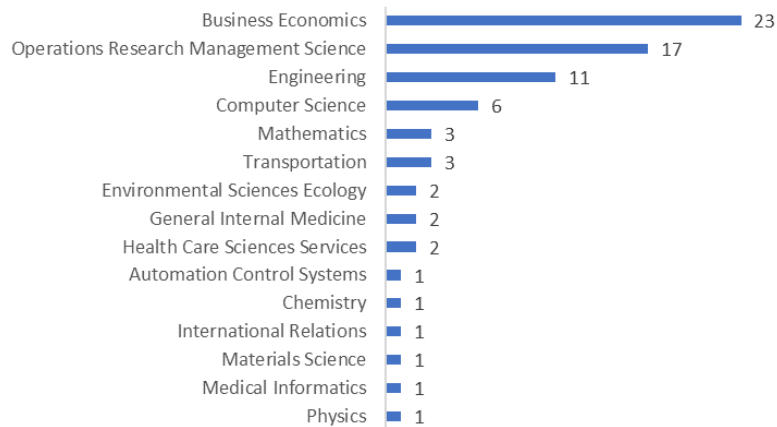


Source: Own Elaboration.

Except for 2020, the number of publications per year varied between 1 and 3. Considering 1996-1997, 1999-2002 and 2008, no record of articles on this subject was published in WoS.

The principal research areas are “Business Economics”, “Operations Research Management Science” and “Engineering” with frequencies of 23, 17 and 11, respectively (Figure 4).

Figure 4: Research areas based on frequency



Source: Own Elaboration

Results obtained from Wos also suggest a strong concentration in countries that develop published investigation about DEA in defense and military organizations (Table I).

Table I: Countries based on frequency

Countries/Regions	Record Count
USA	14
Taiwan	9
Peoples R China	5
South Korea/Spain	4
Malaysia	3
Belgium/Japan/Norway/Turkey	2
Canada/Colombia/England/Greece/Iran/Israel/Lithuania	
Serbia/U Arab Emirates	1

Source: Own Elaboration

Of the 47 articles, 49% have origin in the USA (14 articles) and Taiwan (9 articles), followed by China (with 5) and South Korea and Spain (with 4 each). The most cited papers are listed in Table II. Tavana et al. (2012) appears as the most cited article (3,54 citations per year), is a case study for the base realignment and closure (BRAC) decision process at the U.S. Department of Defense and is presented to illustrate the features and the applicability of the Fuzzy stochastic DEA.

Table II: Articles with Average Citation per year > 1

N	Title	Journal	Citations	Average per Year
1	Fuzzy stochastic data envelopment analysis with application to base realignment and closure (BRAC) (Tavana et al., 2012)	Expert Systems With Applications	46	3,54
2	Evaluating the efficiency of dual-use technology development programs from the R&D and socio-economic perspectives (Lu et al., 2016)	Omega-International Journal of Management Science	27	3
3	Dredging the depths of knowledge: Efficiency analysis in the maritime port sector (Merkel & Holmgren, 2017)	Transport Policy	24	3
4	R&D Project Performance Evaluation With Multiple and Interdependent Criteria (Tohumcu & Karasakal, 2010)	IEEE Transactions on Engineering Management	29	1,93
5	Assessing joint maintenance shops in the Taiwanese Army using data envelopment analysis (Sun, 2004)	Journal of Operations Management	36	1,71
6	Financial analysis of civil reserve air fleet participants using data envelopment analysis (Bowlin, 2004)	European Journal of Operational Research	23	1,1

Source: Own Elaboration

Lu et al. (2016) apply a Network slacks-based measure to examine the R&D efficiency and socio-economic efficiency of Taiwan's dual-use (military and public) technology development programs. Merkel & Holmgren (2017) analysed port efficiency based on estimates of port and country characteristics from 52 studies. Tohumcu & Karasakal (2010) developed an approach applied to a case study on performance evaluation of the ongoing projects in a Defense Research and Development Institute, combining analytic network process (ANP) and DEA. Sun (2004) proposes an alternative DEA method for assessing the performance of joint maintenance shops in the Taiwanese Army over two 6-month periods in 2000 and examines the possibility of using DEA over time as a basis for continuous improvement. Finally, Bowlin (2004) assesses the financial stability of civil reserve air fleet participants using DEA complemented by ratio analysis.

Table III lists the most frequent keywords (top 10), showing the research hot topics in the field.

Table III: Top 10 list of keyword frequencies and total link strength

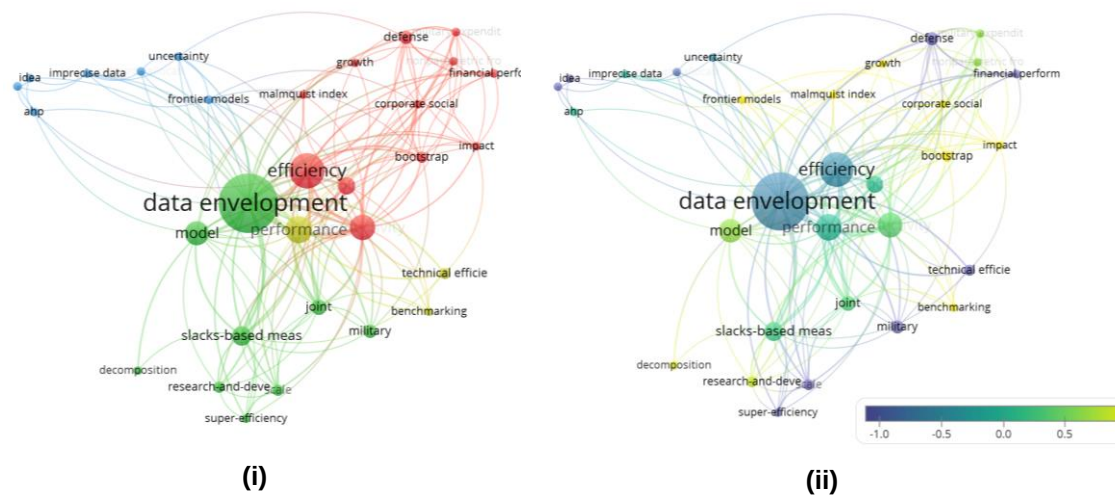
Keyword	Occurrences	Total link strength
data envelopment analysis	41	115
efficiency	18	62
performance	12	47
productivity	11	62
model	10	26
slacks-based measure	7	28
units	6	29
joint	5	32
defense	4	20
military	4	10

Source: Own Elaboration

Based on the keyword co-occurrence knowledge map (Figure 5), VOS viewer was run to obtain the keyword clustering network (i), attaining 4 groups, and overlay visualization based on the change of keywords over time (ii).

Analysing network visualization (i), the higher the weight of an item, the larger the label and the circle, also the colour of an item is determined by the cluster to which the item belongs. The first group (red) contemplates papers that explored efficiency, financial performance, and growth, based on Bootstrap and Malmquist index (Financial efficiency). The second group (green) is aligned with papers that develop some specific DEA approaches, decomposition, slacks-based measure, and super-efficiency (Case models). The third group (blue) investigated AHP, uncertainty, resource allocation and imprecise data (Risk assessment). Finally, the fourth group (yellow) investigates benchmarking, performance, and technical efficiency (Technical efficiency). As can be seen from (ii), the new high-frequency keywords, revealing recent trends of research, are “growth”, “impact”, “research and development”, “benchmarking”, “corporate social responsibility”, “bootstrap”, “frontier models” and “Malmquist index”.

Figure 5: Network (i) and Overlay (ii) visualization (VOSviewer)



Source: Own Elaboration

5. Conclusion

This study analyzed papers that have recently been published in WoS in the field of Data Envelopment Analysis (DEA) in the military and defense industry. From a total of 47 papers analyzed we can conclude that, although DEA is a widely explored technique for efficiency analysis, its application in the military and defense fields is still incipient, and concentrated in a small number of countries, mainly USA and Taiwan. Only a small number of publications are from European countries, despite the search for efficient procurement models, R&D expenditure, and efforts towards the competitiveness of its growing defense industry.

Among the most cited articles (top 6) the most recent was published in 2017. Financial efficiency, R&D and projects are important areas of application.

Research trend analysis reveals that the DEA lens has shifted from financial performance and technical efficiency analysis towards risk analysis, benchmarking, and impact analysis. However, results do not reflect evidence of research based on DEA methods that better account for complex conditions, like DEA with Machine Learning algorithms and Fuzzy DEA.

After this preliminary study, appears to be relevant to expand the collection base to other bibliometric sources. Further, a meta-analysis of DEA applications in the public sector and across different sectors and the integration of DEA with machine learning and artificial intelligence would also provide useful information to the researchers working in this area.

References

- Boussofianne, A., Dyson, R. G., & Thanassoulis, E. (1991). Applied Data Envelopment Analysis. *European Journal of Operational Research*, 52(1), 1–15. [https://doi.org/10.1016/0377-2217\(91\)90331-O](https://doi.org/10.1016/0377-2217(91)90331-O)
- Bowlin, W. F. (2004). Financial analysis of civil reserve air fleet participants using data envelopment analysis. *European Journal Of Operational Research*, 154(3), 691–709. [https://doi.org/10.1016/S0377-2217\(02\)00814-7](https://doi.org/10.1016/S0377-2217(02)00814-7)
- Camanho, A. S., Silva, M. C., Piran, F. S., & Lacerda, D. P. (2023). A literature review of economic efficiency assessments using Data Envelopment Analysis. In *European Journal of Operational Research*. Elsevier B.V. <https://doi.org/10.1016/j.ejor.2023.07.027>
- Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2(6), 429–444. [https://doi.org/10.1016/0377-2217\(78\)90138-8](https://doi.org/10.1016/0377-2217(78)90138-8)
- Charnes, A., Hardin, J. P., Chair, C., Clark, C. T., Cooper, W. W., & Golany, B. (1984). A Developmental Study of Data Envelopment Analysis in Measuring the Efficiency of Maintenance Units in the U.S. Air Forces. *Annals of Operations Research*, 2, 95–112. <https://doi.org/https://doi.org/10.1007/BF01874734>
- Emrouznejad, A., & Yang, G. liang. (2018). A survey and analysis of the first 40 years of scholarly literature in DEA: 1978–2016. *Socio-Economic Planning Sciences*, 61, 4–8. <https://doi.org/10.1016/j.seps.2017.01.008>

- Farrell, M. J. (1957). The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society. Series A (General)*, 120(3), 253–290. <https://doi.org/10.2307/2343100>
- Hanson, T. (2016). Efficiency and productivity in the operational units of the armed forces: A Norwegian example. *International Journal of Production Economics*, 179, 12–23. <https://doi.org/10.1016/j.ijpe.2016.05.016>
- Jia, C., & Mustafa, H. (2023). A Bibliometric Analysis and Review of Nudge Research Using VOSviewer. *Behavioral Sciences*, 13(1). <https://doi.org/10.3390/bs13010019>
- Lu, W. M., Kweh, Q. L., Nourani, M., & Huang, F. W. (2016). Evaluating the efficiency of dual-use technology development programs from the R&D and socio-economic perspectives. *Omega-International Journal Of Management Science*, 62, 82–92. <https://doi.org/10.1016/j.omega.2015.08.011>
- Merkel, M., & Holmgren, J. (2017). Dredging the depths of knowledge: Efficiency analysis in the maritime port sector. *Transport Policy*, 60, 63–74. <https://doi.org/10.1016/j.tranpol.2017.08.010>
- Naumovski, T., Cvetkoska, V., & Georgieva, L. (2017). Applying the Methodology Data Envelopment Analysis in the Defence Sector: Literature Review. *Contemporary Macedonian Defence*, 17(33), 43–52. <http://hdl.handle.net/20.500.12188/4048>
- Schulze-Marmeling, S., Wilke, P., & Wulf, H. (2022). *Defense Industry in Europe*. https://justtransitionindefence.eu/wp-content/uploads/2022/11/Defence-Industry-report_-EN.pdf
- Solana Ibáñez, J., Caravaca Garratón, M., & Soto Meca, A. (2020a). A literature review of DEA efficiency methodology in defence sector. *Academia Revista Latinoamericana de Administración*, 33(3/4), 381–403. <https://doi.org/10.1108/ARLA-11-2019-0228>
- Solana Ibáñez, J., Caravaca Garratón, M., & Soto Meca, A. (2020b). A literature review of DEA efficiency methodology in defence sector. In *Academia Revista Latinoamericana de Administración* (Vol. 33, Issues 3–4, pp. 381–403). Emerald Group Holdings Ltd. <https://doi.org/10.1108/ARLA-11-2019-0228>
- Solana-Ibáñez, J., Caravaca-Garratón, M., & Teruel-Sánchez, R. (2020). Stakeholder perception on corporate reputation and management efficiency: Evidence from the Spanish Defence sector. *Corporate Social Responsibility and Environmental Management*, 27(5), 2381–2399. <https://doi.org/10.1002/csr.1943>
- Sun, S. (2004). Assessing joint maintenance shops in the Taiwanese Army using data envelopment analysis. *Journal of Operations Management*, 22(3), 233–245. <https://doi.org/10.1016/j.jom.2004.01.003>
- Tavana, M., Shiraz, R. K., Hatami-Marbini, A., Agrell, P. J., & Paryab, K. (2012). Fuzzy stochastic data envelopment analysis with application to base realignment and closure (BRAC). *Expert Systems with Applications*, 39(15), 12247–12259. <https://doi.org/10.1016/j.eswa.2012.04.049>
- Tohumcu, Z., & Karasakal, E. (2010). R&D project performance evaluation with multiple and interdependent criteria. *IEEE Transactions on Engineering Management*, 57(4), 620–633. <https://doi.org/10.1109/TEM.2009.2036159>

Zhou, P., Ang, B. W., & Poh, K. L. (2008). A survey of data envelopment analysis in energy and environmental studies. *European Journal of Operational Research*, 189(1), 1–18. <https://doi.org/10.1016/j.ejor.2007.04.042>

Measuring The Quality of Electric Vehicle Charging Services in Portugal: Application of The Servqual Model

Eduardo Ortega. CEBER - Centre for Business and Economics, FEUC - Faculty of Economics, University of Coimbra, Portugal. eduardo.m.r.ortega@gmail.com

Miguel Dávila. IPAM - Instituto Português de Administração e Marketing, Portugal. medavila@universidadeuropeia.pt

Abstract

Purpose: In light of the sustainable development goals outlined in the 2030 agenda, this study aimed to assess the quality of electric vehicle charging services in Portugal.

Methodology: The quality of charging infrastructure is crucial for the adoption of electric mobility (Biresselioglu et al., 2018), a key pillar of sustainable development. Exploring marketing strategies can promote market development (Laurischkat & Jandt, 2018). However, this requires service providers to deliver quality services to positively impact consumers (Grönroos, 2020). According to Carrillat (2007), SERVQUAL is the most suitable tool for measuring service quality as it compares expectations with the perception of the received service's performance. A survey using the adapted SERVQUAL model (Parasuraman et al., 1994) was conducted on a convenience sample of 145 electric vehicle users in Portugal. To confirm the hypotheses, the paired-samples T-test was used to highlight significant differences ($p < 0.05$) in the means of perceptions and expectations, both globally and by each dimension. The one-way ANOVA analyzed the means per dimension in relation to sociodemographic characteristics.

Results: The results showed that users' expectations exceed their perceptions of the quality of the received service. This indicates that the charging service in Portugal does not meet adequate quality standards from the consumer's perspective.

Originality: This study validates the SERVQUAL model in this context and provides insights for managers and decision-makers to develop strategies for this market's growth. In addition to evaluating the electric mobility landscape in the country, this study employed a methodology based on a significant marketing tool, yielding crucial results for sector competitiveness and the promotion of sustainable development.

Keywords: *Electric mobility; quality of services; service marketing; SERVQUAL; sustainable development.*

References

- Biresselioglu, M. E., Demirbag Kaplan, M., & Yilmaz, B. K. (2018). Electric mobility in Europe: A comprehensive review of motivators and barriers in decision making processes. *Transportation Research Part A: Policy and Practice*, 109, 1–13. <https://doi.org/10.1016/j.tra.2018.01.017>
- Carrillat, F. A., Jaramillo, F., & Mulki, J. P. (2007). The validity of the SERVQUAL and SERVPERF scales. *International Journal of Service Industry Management*, 18(5), 472–490. <https://doi.org/10.1108/09564230710826250>
- Grönroos, C. (2020). Viewpoint: service marketing research priorities. *Journal of Services Marketing*, 34(3), 291–298. <https://doi.org/10.1108/JSM-08-2019-0306>
- Laurischkat, K., & Jandt, D. (2018). Techno-economic analysis of sustainable mobility and energy solutions consisting of electric vehicles, photovoltaic systems and battery storages. *Journal of Cleaner Production*, 179, 642–661. <https://doi.org/10.1016/j.jclepro.2017.11.201>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Reassessment of Expectations as a Comparison Standard in Measuring Service Quality: Implications for Further Research. *Journal of Marketing*, 58, 111–124. <https://doi.org/10.2307/1252255>

The impact of managing expectations and priority decisions for the Olympic Games: A nightmare for sustainability?

Madalena Eça de Abreu. Polytechnic University of Coimbra, Rua da Misericórdia, Lagar dos Cortiços, S. Martinho do Bispo, 3045-093 Coimbra, Portugal. CEOS.PP-Coimbra, Portugal. mabreu@iscac.pt

Catarina Alexandra Martins Abrantes. Polytechnic University of Coimbra, Rua da Misericórdia, Lagar dos Cortiços, S. Martinho do Bispo, 3045-093 Coimbra, Portugal. a2023104413@alumni.iscac.pt

Inês Carolina Ferreira Ribeiro. Polytechnic University of Coimbra, Rua da Misericórdia, Lagar dos Cortiços, S. Martinho do Bispo, 3045-093 Coimbra, Portugal. iscac15469@alumni.iscac.pt

Sara da Silva Fontelas. Polytechnic University of Coimbra, Rua da Misericórdia, Lagar dos Cortiços, S. Martinho do Bispo, 3045-093 Coimbra, Portugal. a2018056641@alumni.iscac.pt

Abstract

Purpose: The purpose of this study is to examine the impact of conflicting decisions made by the Olympic organization on the marketing and public perception of the Olympic Games. The study specifically addresses the controversy surrounding the Tahiti Tower for the Paris 2024 Olympic Games, which has been the subject of criticism due to past failures that appear to contradict the organization's proclaimed values.

Methodology: The methodology employed in this study is as follows: The study employed a mixed-method approach, integrating a qualitative method through the analysis of academic journals, news and social media content, and a quantitative method through a survey to capture stakeholders' perspectives on the Tahiti Tower controversy. This approach enabled a comprehensive analysis of the issue, integrating different sources and perspectives to understand the causes, consequences, and potential solutions.

Results: The results of the study yielded the following findings: The findings of this study indicate a notable shift in public perception of the Olympic Games. There is clear evidence of increased environmental awareness among respondents, with 68.5% aware of the Tahiti Tower controversy and 98% concerned about the conservation of marine

life. Furthermore, 71% of respondents indicated a willingness to reconsider their attendance at the Games, while 74.1% expressed a negative perception of the organisation. A significant proportion of respondents (66.7%) indicated that the most environmentally responsible solution would be to retain the wooden tower and halt construction. These findings serve to illustrate the significance of effectively managing controversial issues associated with the Olympic Games and emphasize the necessity for enhanced environmental responsibility in major international events.

Findings: The findings of this study are subject to certain limitations. It should be noted that the study is subject to certain limitations, including sampling bias. This is due to the fact that the sample was drawn from a single institution, comprising a relatively homogeneous group of individuals with similar age, educational background and other characteristics. This limits the ability to generalize the findings. A further limitation of the study is the relatively small sample size of 55 respondents, which may limit the comprehensiveness of the findings. Furthermore, as previously indicated, the study concentrated on individuals between the ages of 20 and 55. This may have resulted in the omission of certain perspectives.

Originality: The study offers a novel contribution to the existing literature on the subject matter. This research offers insights into the challenges of environmental and social sustainability at a major international event, with a focus on data collection through online platforms. Despite the limitations of the study, it provides insight into public attitudes towards the construction of the Tower and highlights the necessity of environmental and social sustainability in major events such as the Olympic Games. To the best of our knowledge, this study represents a novel contribution to the existing literature, offering insights into the complexities of the Tahiti Tower debate.

Keywords: *Marketing; Perception; Social media; Mega-events; Olympic Games; Sustainability.*

1. Introduction

The Olympic Games, organized by the International Olympic Committee in conjunction with Local Organizing Committees, are a series of international multi-sport events held every four years. These events are of great prestige, bringing together athletes from across the globe and attracting vast crowds. Furthermore, the controversies surrounding the Olympic Games have been the subject of

several recent studies (International Olympic Committee, n.d.). Moreover, issues pertaining to sustainability, in general, and the environment, in particular, are of significant concern in the contemporary era.

The 2024 Olympic Games will be held in Paris, primarily in the Île-de-France region. However, the surfing event will be held outside French territory, in Teahupoo, a village belonging to Tahiti. This is due to the fact that the beaches at Teahupoo will host the annual World Surf League. In the context of mounting concern, the controversial decision by the Paris 2024 Olympic Organising Committee to replace the wooden tower at Teahupoo Beach with a €25 million aluminium tower has been a subject of intense debate and analysis in the media. Indeed, this decision has been met with criticism for its potential adverse impact on the reef and marine life, leading to negative publicity and protests against the organization. The 2024 Olympic Games will be held in Paris, primarily in the Île-de-France region. However, the surfing event will be held outside French territory, in Teahupoo, a village belonging to Tahiti. This is due to the fact that the beaches at Teahupoo are used for the annual World Surf League event. During the technical tests conducted on the 1st of December, a platform intended for the installation of the new tower caused the damage of several pieces of coral. This led the Polynesian government to suspend the works. Corals are the most vulnerable to the effects of global warming. They provide essential habitat for 25% of all marine species. The destruction of these ecosystems has a negative impact on the wider ecosystem, with the potential to disrupt the entire local marine environment.

A protest was held by associations and residents against the construction of an aluminium tower for judges situated on the water. It is feared that the construction of the tower will have a detrimental impact on the health of the coral reefs in Tahiti

(Mesquita, 2023). As reported by Surfer Magazine (2023), a petition has been created online and has already attracted the attention of the international community, with over 250,000 signatures. The petition, created by residents and visitors to Teahupoo, calls upon the government to reconsider the decision to build the tower.

The principal objective of this study is to examine the general public's perception of this decision by the Paris 2024 Olympic Organizing Committee. The study will also seek to ascertain the reasons behind the decision of the Olympic Organizing Committee to adopt an approach that does not prioritize sustainability and transparency. Furthermore, it will analyse the potential consequences of negative marketing, including legal action, international pressure and a decline in spectator numbers. Finally, it will identify solutions to improve the organization's social responsibility and promote more environmentally conscious strategies.

2. Literature Review

2.1. Mega-events and social impact

Mega-events are defined as "walking occasions of a fixed duration that (a) attract large numbers of visitors, (b) have a large media reach, (c) are associated with large costs, and (d) have a large impact on the built environment and the population" (Müller, 2015). As events with a significant impact on the wider community, it is to be expected that planning will be a key focus for risk management. It can be argued that the root of many controversies surrounding the organization of mega-events lies in the inherent risk associated with such events. This risk can be seen to manifest in the conflict between the short-term

needs of the event and the long-term goals and interests of the community and the city in which the event is taking place.

As an illustration of the aforementioned issues, the organization of the FIFA World Cup in Brazil serves as a case study in the challenges that can arise in the context of mega-events. The staging of sports mega-events presents a valuable opportunity to welcome hundreds of thousands of visitors, who will have the chance to gain insights into the culture and people of the host country, being a stimulus for economic growth and infrastructure improvement in the host countries. However, this decision was not straightforward, including issues as the country's clear lack of infrastructure capacity, poor operational management and inadequate private and corporate business environment (Mitra, 2015). In fact, the FIFA organisation led to the construction of stadiums and infrastructure, with government investment prioritized over essential areas such as health and education. This resulted in negative impacts on the most vulnerable sectors, including forced displacement of communities, environmental degradation, waste of public resources and exacerbation of social inequalities (Tomlinson & Young, 2023). Furthermore, the carbon emissions generated by the event also contributed to climate change. Mitra's study concludes that the Cup represents another avenue for large corporations to profit by exploiting workers and receiving billions in public funding (Mitra, 2015)

Borga & Castells (2013) proposed that for World Cups, the organization should exercise greater caution in its selection of venues, consulting with the host government, which would be in a superior position to comprehend local economic conditions. These authors emphasized that the objective of mega-events should be to benefit not only the organizers but also the local community. Additionally, Porciuncula et al. (2024) emphasized that the promotion of mega-events should

be reserved for countries that do not face significant social problems. They argued that major investments should be made in essential areas such as health, education, security and job creation to help local communities. Furthermore, these authors contended that the objective of hosting an event should be to benefit the entire community, with the implementation of laws and regulations designed to benefit the community as a whole.

2.2. Olympic Games and Sustainability

The Committee International Olympic Games (IOC) first addressed the issue of environmental sustainability in the 1990s. However, despite this early concern, several missteps have been made at the Olympic level with regard to environmental protection and animal life. From 2010 onwards, the selection of suppliers and the recruitment of resources became an essential aspect of the organisation of the Games, with broader aspects of sustainability becoming a key consideration. The environmental impact of the Sochi 2014 Olympics was examined by other scholars, such as Prudnikova (2015). He examined how overly ambitious sustainability commitments by the Olympic organisation and local government could be ineffective due to institutional control failures at national and international levels, resulting in irreversible environmental damage, social injustice and environmental migration. Despite the assertion that the Sochi 2014 Olympics were to be the 'greenest games ever', this claim ultimately proved to be hollow, as the event did not fulfil the sustainability commitments that were made. Müller, et al. (2021) proposed that the Olympic organization integrate sustainability into its practices and ensure adequate funding for environmental programmes from the planning stage, in light of the events of this mega-event. Furthermore, she emphasized the necessity of meticulous evaluation of existing

infrastructure in prospective host countries to preclude the selection of cities with construction challenges, thus preventing significant environmental damage.

In conclusion, the study indicates that a balanced approach between sport and environmental development is essential for enhancing the image and legacy of the Olympics. Furthermore, the study emphasizes the necessity for the International Olympic Committee to adopt a more proactive approach in ensuring that host countries fulfil their environmental commitments (Geeraert & Gauthier, 2018), highlighting the importance of open and effective dialogue between stakeholders in order to guarantee the sustainability of the Games in the future.

3. Methodology

The study employed a mixed methodology, integrating both qualitative and quantitative elements. The combination of qualitative and quantitative methods allowed for a comprehensive analysis of the issue, integrating different sources of information and perspectives in order to gain a more complete understanding of the reasons, consequences and possible solutions to the controversy at hand. The qualitative approach involved a review of the literature, as well as an analysis of news and social media content to gain insight into public perspectives and discourse surrounding the Tahiti Olympic Tower controversy, specifically regarding the controversial construction of the aluminium tower at Teahupoo. Furthermore, a brief survey was conducted to gather data directly from stakeholders, providing insights into perceptions and opinions on the issue.

The survey was distributed via online platforms in order to ensure that potential participants would have convenient and expedient access to it. Five questions were posed to participants, covering topics related to the construction of the

aluminium tower, including environmental, cultural and social impacts, as well as opinions on the Olympic organization's stance on these issues. The data collection method employed a convenience sampling approach, with the majority of respondents being students at Coimbra Business School, Coimbra, Portugal. The survey participants were encouraged to disseminate the survey through various channels, thus employing a snowball sampling technique. The survey was conducted online during the month of January 2024, resulting in 55 responses from individuals aged 20 to 55.

4. Results

The responses indicated a discernible pattern, with 68.5% of respondents demonstrating awareness of the Tahiti Tower controversy and 98% expressing concern about the conservation of marine life. With regard to the Olympic Games, 75.9% of respondents indicated that they regularly watched them.

Some 71% of respondents indicated a willingness to reconsider their attendance at the Games, while 74.1% expressed a negative view of the organization.

In terms of proposed solutions, the majority (66.7%) believe that the most appropriate approach would be to retain the wooden tower and halt construction. A mere 5.6% of respondents proposed the cancellation of the Olympic Games as a solution. Other potential solutions include selecting an alternative surfing location (40.7%) and conducting arbitration from land with the assistance of drones (44.4%).

Table I: Results from the survey

Questions	Number of Answers		
	Yes	Sometimes/Maybe	No
Have you ever heard of the controversy surrounding the tower in Tahiti built for the Olympic Games?	37	-	17
Do you think it's important to prioritize the preservation of marine life?	53	-	1
Do you usually watch the Olympic Games?	41	7	6
If yes, after learning about this controversy, will you continue to watch the Olympic Games?	39	3	12
Does knowing about this case make you view the Games negatively?	40	10	4

Source: Own Elaboration

5. Discussion

The responses demonstrate a notable shift in respondents' perceptions of the Olympics following their awareness of the Tahiti Tower controversy.

The repeated decisions of the Olympic Games Organizing Committees have resulted in a series of negative consequences that threaten the integrity and reputation of this prestigious sporting event. The insistence on the selection of an unsustainable approach, as evidenced by the controversial construction of the Aluminium Tower at Teahupoo Beach, has had a significant impact in a number of areas, with profound and lasting consequences. In order to mitigate the aforementioned negative impacts, it is imperative that the organization of the Olympic Games adopt comprehensive and proactive strategies. These should include active and transparent communication with the public, acceptance of

responsibility for environmental damage, public consultation, local involvement and compensation for those affected.

Local communities and the global community have expressed concerns about the lack of environmental consideration in a competition that is supposed to celebrate excellence in all aspects. The negative reactions to the event have ranged from concerns about the environment to the preservation of local tradition.

The implementation of these strategies has the potential to rebuild public trust and strengthen the organization's position for future Olympic Games. The construction of an aluminium tower in Tahiti for the Paris 2024 Olympic Games presents a number of environmental, social, economic and legal challenges that require a detailed examination of the long-term impacts. The preservation of the marine environment and the sustainability of the local ecosystem are at stake in this decision. It is of the utmost importance to prioritize sustainability and implement strategies to reverse any negative impacts.

Furthermore, the international dimension of the event also comes into play, with possible impacts on international relations. Should tensions with the Polynesian government and other nations concerned about environmental preservation persist, it is possible that this could have a detrimental effect on the global reputation of the Olympic Games. Consequently, this may result in a loss of interest from future hosts. The current controversy has set an unfavorable precedent, making cities reluctant to join an event that does not prioritize sustainable practices and could result in negative local impacts.

In order to mitigate the negative impacts of its controversies, the organisation of the Olympic Games must adopt comprehensive and proactive strategies aimed at restoring trust in the public eye and safeguarding the reputation of the event.

Firstly, it is imperative that the Olympic Games organization adopts a more active and transparent communication strategy with the public in the future. This should involve a commitment to disclosing information in an open and accessible manner, allowing the public to understand the reasons behind the organization's choices. In the context of transparency, it is of the utmost importance that the organisation acknowledges and assumes responsibility for the environmental impacts caused, and that it is willing to admit when it has made mistakes and to take the necessary steps to rectify them. Such actions will not only demonstrate the company's ethical responsibility but will also contribute to the re-establishment of trust with affected communities. The involvement of the public and local communities in decision-making processes is a strategy that facilitates the inclusion of community voices in the decision-making process.

6. Conclusion

The results demonstrate that the controversy has had a profound effect on the public perception of the Games, underscoring the necessity of effectively managing controversial issues surrounding the Olympics.

This episode serves to illustrate the manner in which contemporary organisations are confronted with significant repercussions as a consequence of their attitudes and actions. With an increasing focus on environmental sustainability, younger generations are influencing a new paradigm of values and priorities. Concurrently, the phenomenon of "cancellation culture" intensifies the consequences for organizations that diverge from the values they espouse, as social media exerts a profound influence on public opinion and the population at large. In the specific context of the Olympic organization, which has a dedicated

section on sustainability, failure to adhere to these principles can erode its credibility and reputation. This research contributes to the wider debate about environmental responsibility in the context of major international events such as the Olympic Games.

In conclusion, this study emphasized the significance of delivering global sporting events in an environmentally and socially responsible manner, while respecting the values and sustainability of host communities. The case of the Tahiti Tower controversy surrounding the Olympic Games Paris 2024 demonstrated the necessity to ensure that proclaimed values and commitments are reflected in the actions and decisions taken during the planning and delivery of major sporting events. Furthermore, it highlighted the importance of adopting a comprehensive approach to the environmental and social issues associated with them.

It should be noted that this study is subject to several limitations. Firstly, the sample size is relatively small, and the respondents were selected on the basis of convenience. Consequently, the findings may be significantly biased. Secondly, it would be beneficial to analyse a wider range of opinions, for example, from the stakeholders of the organization in question. Thirdly, future research should also be conducted on post-Olympic stakeholder engagement.

References

- Borja, J., & Castells, M. (2013). Local y Global [Local and Global]. *United Nations Center for Human Settlements – Habitat II* – Ajuntamento de Barcelona.
- International Olympic Committee. (n.d.). Mission. Retrieved from <https://olympics.com/ioc/mission>
- Geeraert, A., & Gauthier, R. (2018). Out-of-control Olympics: Why the IOC is unable to ensure an environmentally sustainable Olympic Games. *Journal of Environmental Policy & Planning*, 20, 16–30.

- Mesquita, J. L. (2023). “*Surf e ameaça aos corais do Taiti: polêmica dos Jogos Olímpicos de Paris*”. Novembro de 2023. Accessed in <https://marsemfim.com.br/surf-e-ameaca-aos-corais-do-taiti-polemica-dos-jogos-olimpicosde-paris/>
- Mitra, A. (2015). An Ethical Analysis of the 2014 FIFA World Cup in Brazil. *Law and Business Review of the Americas*, 21(1), Article 2.
- Müller, M. (2015). What makes an event a mega-event? Definitions and sizes. *Leisure Studies*, 34(6), 627–642.
- Müller, M., et al. (2021). An evaluation of the sustainability of the Olympic Games. *Nature Sustainability*, 4, 340–348.
- Porciuncula Porto, L., Ceron, L. F., & Bonesso de Araújo, L. E. (2014). Copa do Mundo 2014: Análise dos Impactos Ambientais, Econômicos e Sociais [2014 World Cup: Analysis of Environmental, Economic and Social Impacts]. *Revista Eletrônica do Curso de Direito da UFSM*.
- Winter Olympic Games: A case study of Sochi 2014. *Journal of Policy Research in Tourism, Leisure and Events*, 4(2), 211-214.
- Surfer Magazine (2023). “*Paris 2024 Refuses to Move Teahupo'o Surf Comp Despite Olympic Tower Outrage*”. November 2023.
- Sobol, A. L. (2015). *No Medals for Sochi: Why the Environment Earned Last Place at the 2014 Winter Olympic Games, and How Host Cities Can Score a "Green" Medal in the Future*. 26 Vill. Envtl. L.J. 169.
- Sochi 2014 - *Relatório da Missão do PNUMA*. Accessed in: <https://digital.la84.org/digital/api/collection/p17103coll8/id/70124/download>
- Tomlinson, A., & Young, C. (Eds.) (2023). *National identity and global sports events: Culture, politics, and spectacle in the Olympics and the football World Cup*. State University of New York Press.

Urban-rural reciprocity relations: A study for a new integrated model

Pedro Rocha. *Escola Superior Agrária, Instituto Politécnico de Viana do Castelo, R. D. Mendo Afonso, 147, Refóios, 4990-706 Ponte de Lima, Portugal. pedrorocha@oquintoelemento.com*

Rui Rosa Dias. *ISAG European Business School (ISAG-EBS) e Research Center in Business Sciences and Tourism (CICET - FCVC) e do Instituto Português de Administração de Marketing - IPAM Porto.*

Joaquim Mamede Alonso. *PROMETHEUS - Research Unit on Materials, Energy and Environment for Sustainability, Instituto Politécnico de Viana do Castelo, R. Escola Industrial e Comercial de Nun'Álvares, 4900-347, Viana do Castelo, Portugal. malonso@esa.ipvc.pt*

Abstract

Purpose: Urban-rural relations are essential and much needed for an integrated strategy of territorial development. Both play essential roles in achieving a harmonious connection between landscapes and ensuring the population's well-being, the environmental and social sustainability as well as economic viability. This research intended to understand the urban and rural relationships and how these citizens are willing and capable to introduce collaborative strategies to embrace a harmonious development of both territories. Additionally, the idea of comprehending what each one could offer, preserve, and support, was also a designed research goal.

Methodology: A structured focus group method was designed, involving a sample of 32 experts from urban and rural areas across private, public, and academic sectors. The experts panel were selected by using some previous criteria, such as, the professionals' profiles and geographical positions. The opinions collected were essential to improve the territory's problems understanding, and above all, to bring new contributions and solutions. Considering the methodology application, two rounds of surveys were done mainly to explore how, why and in what areas - urban-rural the reciprocity relations could be established. In the case of this research, a rural territorial unit was defined by using the Municipality of Melgaço as a sample. This procedure allowed to study a specific

social, natural, and economic environment. In other words, the selection of Melgaço zone, which is a Portuguese village located in the Alto Minho sub-region, belonging to the Norte region in the district of Viana do Castelo. With an urban area of 11.51 km², a total of 238.25 km², and 7.773 inhabitants in 2021, making its population density 32 inhabitants per km², subdivided into 13 parishes. With those ecosystem characteristics, all the urban-rural criteria were achieved.

Results: The findings provided a clear understanding in which urban and rural territories should cooperate, trying to support the relationship of that cooperation, in social policies, for instance, in stopping the rural demographic losses. Based on the triple bottom line strategies, each zone can share and transfer for each other, not only social knowhow, but also, environment compensations and financial capability, to adjust unbalanced situations. The results open the possibility of establishing urban-rural intermunicipal systems, to rebalancing the exchange of benefits between them. These social, economic and environment adjustments, could be achieved through innovation, by redesign processes, business models as social links between people, profit, and planet.

Research limitations: The applied methodology demonstrates its limitations by focusing the urban-rural dialogue on the specific territory of Melgaço Municipality. Therefore, the conclusions cannot be generalized to other rural areas. To extend the methodology to broader territories, a specific group should be selected for each area to incorporate the unique knowledge and understanding of the specific features of each territory.

Originality: Each rural territory has its own geography, climate, and suitability for innovation and sustainable development. The originality of this study lies in narrowing the scope to a specific territory, leveraging the knowledge of local stakeholders and aligning it with the interests, needs, capacities, and availability of urban organizations to engage in innovation and sustainable development processes in rural areas.

Keywords: *Urban-Rural relationships; territories; reciprocity; ecosystem; triple Bottom Line.*

Session – “Sustainability and Performance Measurement”

Chair: Svitlana Ostapenko

Portuguese car trading companies: which performance factors matter?

Maria Elisabete Neves. Polytechnic Institute of Coimbra, Coimbra Business School, Quinta Agrícola - Bencanta, 3045-231 Coimbra, Portugal, & Research Centre for Natural Resources Environment and Society (CERNAS), Polytechnic Institute of Coimbra, Bencanta, 3045-601 Coimbra, Portugal & CEOS, ISCAP, Polytechnic of Porto, Porto, Portugal. mneves@iscac.pt

Joel Moreira. Polytechnic Institute of Coimbra, Coimbra Business School, Quinta Agrícola - Bencanta, 3045-231 Coimbra, Portugal. joelfjmoreira21@gmail.com

Abstract

Purpose This article aims to analyze the determinants of the performance of Portuguese companies in the light vehicle trade, through specific characteristics, corporate governance, and macroeconomic conditions

Methodology: To achieve this aim, 2.304 Portuguese companies were analyzed, for the period 2015 – 2021, using the panel data methodology, specifically the Generalized Method of Moments (GMM system) estimation method

Results: The results suggest that performance factors depend to some extent on the perception of different stakeholders. It is a sector very dependent on the macroeconomic conditions of the country, with difficulties in treasury management and highly indebted where it is the larger companies that can best take advantage of economies of scale to achieve better levels of performance.

The results also admit that the levels of ownership concentration are relevant in explaining performance and that on the one hand managers need supervision to align

their interests with those of the shareholder creating business value; on the other hand, from the perspective of the shareholder with an interest in ROE, as concentration increases, asymmetric information is greater and the abuse of shareholder power also grows, decreasing the company's performance levels. Finally, the results suggest that the social concerns of this sector are still sparse

Originality: This work is original and can contribute to various stakeholders in that as far as we know it is the first to treat this specific sector with high representativeness in the economy considering three types of variables; business-specific, governance, and macroeconomic

Keywords: *Corporate Performance, Automotive Sector, Portugal, GMM system.*

Acknowledgements (Funding): This work is financed by portuguese national funds through FCT - Fundação para a Ciência e Tecnologia, under the project UIDP/00681/2020 DOI 10.54499/UIDP/00681/2020 & UIDB/05422/2020

1. Introduction

The automotive sector in Portugal employed 124.426 people in 2021, 2.42% of the active population. The 124.426 people were spread across 17,595 companies that earned 29.492 million euros in 2021, which compared to Portugal's Gross Domestic Product of 2021, was 11.62% of GDP.² Microenterprises represent about 90% of the total number of companies in the sector, but large companies, despite being less than 1% of the total, are the companies that generate the highest percentage of the sector's turnover (52%) and that employ the most people (33%). If we divide the sector into two parts, automotive manufacturing and automotive trade, trade appears first in the category of the largest number of companies (97%), turnover (66%) and employed persons (66%)³.

² <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=PT>

³ <https://bpstat.bportugal.pt/conteudos/publicacoes/1296>

Therefore, the future of the automotive sector in Portugal will be based on the ability to maintain and attract Foreign Direct Investment. Given its importance, this study seeks to evaluate the determinants of the performance of this sector in Portugal. To achieve this aim we have used data from 2015 and 2021. We used the methodology of Dynamic Models with Panel Data for an analysis of the temporal evolution of business performance. The analysis was performed using the statistical software platform Stata 17. The results show that performance factors depend on the perception of the different stakeholders. This is a sector very dependent on the country's macroeconomic conditions, with considerable difficulties in cash management and highly indebted, where it is the larger companies that are best able to take advantage of economies of scale.

2. Literature Review

Since this article aims to analyze the determinants of the performance of Portuguese companies in the light vehicle trade, through specific company characteristics, corporate governance, and macroeconomic conditions, the literature review, summarized in Table 1, meets this purpose including recent literature.

Table 1:- Independent Variables

Independent variables	Abbreviations	Proxy	Authors
Company-specific characteristics			
Current Ratio	CR	$\frac{\text{Current assets}}{\text{Current Liabilities}}$	Pervan, et al., (2019)
Company Size	SIZE	$\ln(\text{Total Assets})$	Proença and Neves (2022)
Leverage	LEV	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Dalci (2018)

Social Expenses	SE	<i>Ln(Personnel expenses + Post-employment benefits + Post-employment responsibility)</i>	Qin, et al., (2022)
Intangible Assets	IA	<i>Ln(Total Intangible Assets)</i>	Nguyen-Anh, et al., (2022)
Corporate Governance			
<i>Insider Ownership</i>	INS	%Manager property	Din, et al., (2021)
Board Size	BSize	<i>Number of CA elements</i>	O'Connell and Cramer (2010)
Ownership Concentration	OWN	%Owned by the 3 largest shareholders	Nashier and Gupta (2020)
Macroeconomic characteristics			
Consumer Confidence Index	CCI	<i>Portuguese Bank (2015 to 2021)</i>	Yost, et al., (2020)
Growth Gross Domestic Product	GDP	<i>World Bank (2015 to 2021)</i>	Tanaka, et al., (2020)

Source: Author's own creation.

3. Methodology

We used the panel data methodology, which allows us to solve two fundamental problems: to control the unobservable heterogeneity that, by the nature of the data, can bias the results, and to correct the endogeneity since the performance measures adopted can themselves be determinants of other explanatory variables, Neves et al. (2018). The advantages of using panel data are enumerated: aggregating a greater amount of information; allowing working with more degrees of freedom, greater variability of the data, and less collinearity between variables.

Since economic relations are dynamic, a dynamic adjustment model was used, more specifically the Generalized Method of Moments (GMM) model, an

estimation method proposed by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998). GMM allows you to address endogeneity issues by using instruments to capture variation in explanatory variables that is not related to the error term. This is particularly relevant in our panel data sample where endogeneity is an underlying concern.

The generic description of the estimation model is as follows:

$$Y_{it} = \beta_0 Y_{it-1} + \beta_1 X_{it1} + \beta_2 X_{it2} + \beta_k X_{itk} + u_{it} + v_i$$

Where $i=1, \dots, 304$ represents the various companies analyzed and $t=1, \dots, 7$ represents the seven-year period between 2015 and 2021 in which the results were analyzed. In the general case, $N \times T$ represents the total number of observations, in this case $(2 \times 304 \times 7) = 4256$ observations. The independent variables are those presented in Table 2. All variables are indexed by companies (index i) and indexed by period (t). Finally, the error term is composed of two elements: i. a random element (u_{it}), which can vary between companies and periods; ii. and an individual effect (v_i), specific to each company and invariant over time. The beta letters denote parameters.

Model 1

$$ROA_{it} = \beta_0 ROA_{it-1} + \beta_1 CR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \beta_4 SE_{it} + \beta_5 CCI_{it} + \beta_6 IA_{it} + \beta_7 INS_{it} + \beta_8 BSize_{it} + \beta_9 OWN_{it} + \beta_{10} GDP_{it} + \mu_{it} + v_i \dots (1)$$

Model 2

$$M\_EBITDA_{it} = \beta_0 M\_EBITDA_{it-1} + \beta_1 CR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \beta_4 SE_{it} + \beta_5 CCI_{it} + \beta_6 IA_{it} + \beta_7 INS_{it} + \beta_8 BSize_{it} + \beta_9 OWN_{it} + \beta_{10} GDP_{it} + \mu_{it} + v_i \dots (2)$$

Model 3

$$ROE_{it} = \beta_0 ROE_{it-1} + \beta_1 CR_{it} + \beta_2 LEV_{it} + \beta_3 SIZE_{it} + \beta_4 SE_{it} + \beta_5 CCI_{it} + \beta_6 IA_{it} + \beta_7 INS_{it} + \beta_8 BSize_{it} + \beta_9 OWN_{it} + \beta_{10} GDP_{it} + \mu_{it} + v_i \dots (3)$$

Where, ROA, M_EBITDA and ROE are the dependent variables that reflect the return on assets, equity and EBITDA margin, respectively. The independent variables are those presented in Table 1

4. Results

In this section, we summarize the results of the models in the following tables considering the different dependent variables, intending to capture the various perceptions of different stakeholders

Table II:- Estimation results of Model 1 – ROA as a dependent variable

	Variabl es	Coeffici ent	Standa rd Deviation	Z	P- value	
1)	ROA(L	0,1578	0,0372	4, 25	0,0 00	* **
	CR	-0,1661	0,0655	- 2,54	0,0 11	* *
	LEV	-0,3158	0,4807	- 6,54	0,0 00	* **
	SIZE	2,3937	1,2625	1, 90	0,0 58	*
	SE	-0,4178	0,9520	- 0,44	0,6 61	
	IA	-0,1311	0,4780	- 0,27	0,7 84	
	INS	8,5730	11,388 2	0, 75	0,4 52	
	BSize	-10,4230	6,6602	- 1,56	0,1 18	
	OWN	379,823 1	141,58 85	2, 68	0,0 07	* **

CCI	0,1018	0,0377	2, 70	0,0 07	* **
GDP	11,2555	3,2920	3, 42	0,0 01	* **

Source: Author's own creation.

According to Table 2, it is verified that the ROA of the previous year positively affects that of the current year ($p < 0.1$). This result suggests that the long-term commitment to business policies and strategies by managers has a positive effect on the corporate performance of light automotive trading companies that intend to maintain their image in the market and perhaps receive compensation for their performance (Neves et al., 2022).

Regarding the specific characteristics of the company, the overall liquidity significantly influences the return on total assets ($p < 0.1$). The negative influence is in line with the results of Rehman and Suleman (2013), who demonstrate that in light car trading companies, inventory levels are a significant part of current assets and that this may translate into a problem of managing the financial balance of these companies leading to lower performance. Leverage also has a significant relationship with ROA. The negative relationship is supported by Gharsalli (2019), who suggests that higher debt ratios increase the likelihood of corporate bankruptcy by mortgaging their performance by the associated outflows. Likewise, González (2013), shows that the most indebted companies suffer a decrease in their operating results, derived from higher financial costs. Finally, the company size influences the ROA. large companies can increase their power in the market, creating economies of scale that enhance business performance (Ko, Lee and Anandarajan (2019). Concerning the characteristics of *corporate governance*, none of the independent variables presented statistically relevant results ($p > 0.1$) to explain the ROA of the Portuguese

companies of trade in light cars, except for the concentration of ownership. Perhaps because of the very nature of the sector, made up mostly of small and medium-sized companies where governance recommendations and practices are still limited.

With a more concentrated ownership structure, agency costs are lower given the supervisory effect owners have on management, which is limited in any actions for their own benefit. This conclusion is in line with the results of Shahrier, Ho and Gaur (2020) and Nashier and Gupta (2022), given that managers are more pressured to achieve better business results.

Regarding the macroeconomic characteristics of Portugal, the consumer confidence index has a positive relationship with the ROA ($p < 0.1$), supporting the idea that the positive sentiment of investors and the consequent increase in the level of consumer confidence is essential for Portuguese light car trading companies to achieve good business performance. The change in Portugal's GDP, also registered a significantly positive relationship with the ROA ($p < 0.1$), concluding that good economic conditions increase the demand for goods and services, which contributes to the growth of companies' sales, and therefore leads to better business performance (Pervan, Pervan and Ćurak, 2019).

Table III:- Estimation results from Model 2 – M_EBITDA as a dependent variable

Variables	Coefficient	Standard Deviation	Z	P-value	
M_EBITDA(L1)	0,0762	0,0815	0,93	0,350	
CR	-0,0228	0,0075	-3,04	0,002	***
LEV	-0,0090	0,0050	-1,79	0,074	*
SIZE	0,4197	0,1241	3,38	0,001	***
SE	-0,1346	0,0830	-1,62	0,105	

IA	-0,0922	0,0492	-1,87	0,061	*
INS	-2,5484	2,1812	-1,17	0,243	
BSize	0,6025	1,3705	0,44	0,660	
OWN	51,4339	8,0278	6,41	0,000	***
CCI	0,0028	0,0032	0,86	0,392	
GDP	2,0103	0,6186	3,25	0,001	***

Source: Author's own creation.

Table 3 presents the results of model 2 considering the EBITDA margin variable as a performance measure.

According to the results, the EBITDA margin of the previous year cannot explain the operating margin of the light car trading companies in Portugal in the current year, which may demonstrate some volatility of the sector that has suffered from the successive economic and financial crises of the country. From a narrow management perspective, there is no guarantee that better margins in one year will ensure the same success in later years.

In the field of company-specific characteristics, there are four independent variables with statistically significant impact to explain operating margin, which are namely, current ratio, indebtedness, company size, and intangible assets. Regarding current liquidity, and as happens when ROA is used as a measure of operational performance of global interest, now from a management perspective, the relationship is also negative ($p < 0.1$) which means that trading companies Light automobiles must maintain a low level of inventories, to minimize the costs that are derived from maintaining them and consequently, generate higher operating margins (Rehman and Suleman, 2013). Also according to Eliellv

(2004), there is a negative relationship between liquidity and measures of business performance. The author discloses that companies that obtain higher levels of liquidity have reduced profitability and incur unnecessary expenses that could be eliminated if companies used effective working capital management strategies that lead to greater financial equilibrium.

Indebtedness once again presents a negative relationship with performance, which reinforces that being an over-indebted sector, more debt does not imply a better use of the financial leverage effect, even under the reduced levels of operating profitability (Neves, et al., 2022). Gharsalli (2019), also shows that the most indebted companies reveal to be more likely to fail.

Regarding corporate size, the results show a positive relationship with the EBITDA margin, which means that it is the largest company that can achieve synergies that enhance higher levels of performance (Bolarinwa, et al., 2021).

Essentially, in the light car trading sector it is more advantageous to operate on a large scale to achieve higher operating margins compared to a smaller scale. Finally, the presence of intangible assets has a statistically significant effect on the operating margins of light car trading companies in Portugal, ($p < 0.1$). This effect is negative, that is, companies that hold more intangible assets have worse operating margins. Nguyen-Anh, et al., (2022) support the same relationship, suggesting that the cost-benefit trade-off of these assets is not rewarding in this sector, where neither intellectual capital is very demanding nor the value of patents and R&D expenses.

Concerning corporate governance variables, once again only the concentration of ownership is relevant to explain performance. Similar to the ROA, the concentration of ownership has a positive effect on the business performance of

Portuguese light car trading companies, i.e. a greater concentration of shareholders in the ownership structure of the companies allows them to achieve higher operating margins. This result associated with that obtained when using the variable ROA as a performance measure, suggests that in operational terms, for the management to be efficient owners must exercise their role as supervisors over managers' actions. Perhaps it is a sector permeable to the abuse of power by management (Claessens and Djankov, 1999).

Regarding macroeconomic characteristics, the positive relationship between GDP and performance reinforces that when the economy is on the rise, economic agents can enjoy higher incomes, allowing the purchase of this type of goods and promoting the performance of these companies by increasing sales (Soukhakian and Khodakarami 2019).

Table IV:- Estimation results from Model 3 – ROE as a dependent variable

	Variabl es	Coeffici ent	Standa rd Deviation	Z	P- value	
1)	ROE(L	0,0342	0,0161	2, 12	0,0 34	* *
	CR	-0,1321	0,2160	- 0,75	0,4 52	
	LEV	-0,5791	0,2160	- 2,68	0,0 07	* **
	SIZE	9,7516	5,8713	1, 66	0,0 97	*
	SE	2,7094	3,8730	0, 70	0,4 84	
	IA	-0,0783	2,2327	- 0,04	0,9 72	
	INS	- 115,6393	119,09 09	- 0,97	0,3 32	

BSize	35,0091	79,884 2	0, 44	0,6 61	
OWN	-43,6375	25,190 9	- 1,92	0,0 83	*
CCI	-0,1381	0,1507	- 0,82	0,3 57	*
GDP	33,3384	18,315 9	1, 82	0,0 69	* *

Source: Author's own creation. To read the table see the previous one

As we can see in Table 4, the ROE of the previous year positively affects the ROE of the current year ($p < 0.1$). This means that shareholders do not dispense with their return on invested capital from one year to the next (Neves, et al., 2021). Regarding the independent variables, namely the specific characteristics of the companies, the indebtedness and corporate size stand out, as the characteristics that can statistically explain the ROE of Portuguese light car companies, ($p < 0.1$). Indebtedness has a negative relationship with ROE, reinforcing the result of model 1, that a high degree of indebtedness compromises not only the ROA but also the ROE, probably due to the inability to obtain positive financial leverage effects given that the ROA is not able to sustain the cost of financing (González, 2013 or Neves et al., 2022).

In light car trading companies, larger companies can reduce the average cost of production or sale as the quantity produced or sold increases, which favors shareholder profitability. This conclusion meet the results of Pantea, Gligor and Anis (2014), and Bolarinwa, Akinlo and Onyekwelu (2021).

Regarding the governance characteristics, once again only the independent variable property concentration is statistically relevant to explain the ROE ($p < 0.1$). However, unlike the ROA results, a greater concentration of ownership of light car trading companies hurts shareholder earnings (ROE). A greater

concentration of ownership causes information asymmetry to increase, enhancing opportunistic behavior on the part of shareholders and expropriating wealth from minority shareholders (Earle, Kucsera and Telegdy, 2005 or Neves, et al, 2022).

Concerning the macroeconomic characteristics of Portugal, from the perspective of the shareholder, with an interest in ROE, investor sentiment, as measured by the consumer confidence index, has a significant negative impact on ROE ($p < 0.1$). This may mean that this confidence may even lead to sales, but eventually to cheaper cars, which the majority of the consumer can access in this period.

The variation of the Gross Domestic Product of Portugal presents a statistically positive influence on the ROE ($p < 0.1$). Al-Rdaydeh, Alshannag and Odeh (2018) ensure the positive relationship between GDP variation and business performance. Economic agents can enjoy higher incomes, which in its measure increases the demand for products and services, thus improving the sales and profits of companies (Soukhakian and Khodakarami, 2019).

5. Discussion

It should be noted, immediately afterwards, that the dependent variables lagged, ROA (L1) and ROE (L1), register a statistically significant degree of explanation of the positive business performance. This result may suggest that public opinion, society in general, concerned about the levels of economic profitability (ROA) and longevity of the companies from which their survival comes, believe that for a company to be sustainable in the long term it has to ensure that from one year to year these levels of performance will have to be ensured. Shareholders also want to have their income levels exceeded year by year. From the strict perspective of

the manager, who acts day after day with the resources he has and with the potential he believes it is possible to achieve, he does not believe that he can maintain margins year after year, given the volatility of the markets and the fiscal policies that can condition the level of sales in the sector.

In the field of the specific characteristics of the company that influences business performance, the variables indebtedness and size of the company have a significant impact, presenting the same signal for the three dependent variables. Since it is a highly indebted sector, more debt will imply more outflows and therefore fewer results and less performance, given the absence of the possibility of taking advantage of financial leverage positive effects of. Regarding corporate size, it is noted that it is the largest company in this sector, which can obtain greater economies of scale that allow synergies and gains in productivity, efficiency, and performance (Neves, et al., 2022).

Concerning liquidity, the negative signal with the operational performance may be related to possible problems of financial imbalance of these companies that have high levels of inventories in their current assets.

It is, it seems, a sector without major social concerns since the variable under study (SE) never presents statistical significance. This conclusion can be justified, from the outset, by the difference in salaries between employees and the lack of concerns with R&D and intellectual capital (see the reinforcement of this result with the negative sign of intangible assets in the EBITDA margin)

To governance characteristics, only the concentration of ownership recorded results capable of explaining its impact on business performance, but presenting different results in the various dependent variables, i.e. a positive impact on asset profitability and operating margin and a negative impact on return on equity.

Once again, it is noted that there are notable differences in the explanation of the operational and financial performance of companies. In economic or operational

terms, the results suggest that there is a need for a close performance of the owner in the actions of the manager so that he aligns his interests with his own. It seems that this is a sector where the abusive use of the assets at the disposal of the manager can be a problem and for this very reason, the owner has to supervise all the actions of the manager to increase corporate value. However, a different and interesting result is the one that shows an inverse relationship with ROE meaning that when there is an excess concentration of ownership in the hands of a few shareholders, this can lead to an increase in information asymmetry and the use of abusive behavior of the majority to the minority. The absence of significance in the other governance variables may be associated with the fact that they are almost unlisted SMEs and therefore without "commitments" of practices and recommendations of the corporate governance code.

Finally, concerning the macroeconomic environment, the positive change in GDP in performance levels reflects well the nature of this sector which is very dependent on the purchasing power of consumers. They only buy when the economy is on the rise, successively, enabling healthy competitiveness between companies, and allowing better living conditions.

6. Conclusion

This research allows us to study the business performance of a crucial sector of Portuguese society and economy. Using the panel data model methodology, the results allow us to conclude that the different types of variables are relevant in the explanation of corporate performance, although there are differences in signal and significance depending on the performance measure used, which allows us to sustain that the determinants of performance depend to a large extent on the perception of the different stakeholders.

This work thus contributes to the literature on the subject, supporting other academic works and research works that aim to solidify more knowledge in the area of business performance and the automotive sector. It also contributes to managers, shareholders, and investors who work, coordinate, and intend to invest in companies in the automotive sector, to understand what favors and harms the business performance of these companies by making more informed decisions. Civil society and regulators can also find in this research a source of value that helps to design their economic and financial policies for the automotive sector so that it becomes stronger and more resilient in the future and more committed to social issues.

References

- Arellano, M., and Bond, S. (1991), "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations", *The Review of Economic Studies*, Vol.58No.2, 277.
- Arellano, M., and Bover, O. (1995), "Another look at the instrumental variable estimation of error-components models", *Journal of Econometrics*, Vol.68No.1, pp. 29–51.
- Bennedsen, M., Kongsted, H. C., and Nielsen, K. M. (2008), "The causal effect of board size in the performance of small and medium-sized firms", *Journal of Banking and Finance*, Vol.32No.6, pp. 1098–1109.
- Blundell, R., and Bond, S. (1998), "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, Vol.87No.1, pp. 115–143.
- Bolarinwa, S. T., Akinlo, A. E., and Onyekwelu, U. L. (2021), "Determinants of Firm Profitability in Africa", *Global Business Review*, Vol 0, ahead of print.
- Chen, M. (2015), "Understanding the impact of changes in consumer confidence on hotel stock performance in Taiwan", *International Journal of Hospitality Management*, 50, pp.55–65.
- Cheng, S. (2008), "Board size and the variability of corporate performance", *Journal of Financial Economics*, Vol.87No.1, pp.157–176.
- Claessens, S., and Djankov, S. (1999), "Ownership Concentration and Corporate Performance in the Czech Republic", *Journal of Comparative Economics*, Vol.27No.3, pp.498–513.
- Dalci, İ. (2018), "Impact of financial leverage on profitability of listed manufacturing firms in China", *Pacific Accounting Review*, Vol.30No.4, pp. 410–432.

- Demsetz, H., and Lehn, K. (1985), "The structure of corporate ownership: causes and consequences", *Journal of Political Economy*, Vol.93 No.6, pp.1155–1177.
- Demsetz, H., and Villalonga, B. (2001), "Ownership structure and corporate performance", *Journal of Corporate Finance*, Vol.7No.3, pp.209–233.
- Din, S. U., Khan, M. A., Khan, M. J., and Khan, M. Y. (2021), "Ownership structure and corporate financial performance in an emerging market: a dynamic panel data analysis", *International Journal of Emerging Markets*, Vol.17No.8, pp. 1973–1997.
- Earle, J. S., Kucsera, C., and Telegdy, Á. (2005), "Ownership Concentration and Corporate Performance on the Budapest Stock Exchange: do too many cooks spoil the goulash?" *Corporate Governance: An International Review*, Vol.13No.2, pp. 254–264.
- Gaur, S.S., Bathula, H. and Singh, D. (2015), "Ownership concentration, board characteristics and firm performance: A contingency framework", *Management Decision*, Vol. 53 No. 5, pp. 911-931.
- Gharsalli, M. (2019), "High leverage and variance of SMEs performance", *The Journal of Risk Finance*, Vol.20No.2, p. 155–175.
- González, V. M. (2013), "Leverage and corporate performance: International evidence", *International Review of Economics & Finance*, 25, pp.169–184.
- Ko, C., Lee, P., and Anandarajan, A. (2019), "The impact of operational risk incidents and moderating influence of corporate governance on credit risk and firm performance", *International Journal of Accounting and Information Management*, Vol. 27No.1, pp. 96–110.
- Nashier, T., and Gupta, A. (2020), "Ownership Concentration and Firm Performance in India", *Global Business Review*, Vol 24 No (2), pp.353-370.
- Neves, M.E., Baptista, L., Dias, A., and Lisboa, I. (2021), "What factors can explain the performance of energy companies in Portugal? Panel data evidence", *International Journal of Productivity and Performance Management*, Vol. 72 No. 3, pp. 730-752
- Neves, M.E, Proença, C., and Cancela, B. (2022), "Governance and social responsibility: what factors impact corporate performance in a small banking-oriented country?" *International Journal of Accounting & Information Management*, Vol. 31 No. 1, pp. 66-92.
- Neves, M.E, Santos, A., Proença, C., and Pinho, C. (2022), "The influence of corporate governance and corporate social responsibility on corporate performance: an Iberian panel data evidence", *EuroMed Journal of Business*, Vol. 18 No. 4, pp. 552-574
- Neves, M.E., Cancela, B.L. and Gabriel, V.M. (2022). Performance drivers in Iberian companies in different economic cycles: new evidence using panel data, *International Journal of Accounting & Information Management*, Vol. 31 No. 1, pp. 37-65
- Neves, M.E., Vieira, E. and Serrasqueiro, Z. (2022). Management or market variables in the assessment of corporate performance? Evidence on a bank-based system,

- International Journal of Accounting & Information Management*, Vol. 30 (3), pp. 372-390.
- Nguyen-Anh, T., Hoang-Duc, C., Nguyen-Thi-Thuy, L., Vu-Tien, V., Nguyen-Dinh, U., and To-The, N. (2022), “ Do intangible assets stimulate firm performance? Empirical evidence from Vietnamese agriculture, forestry and fishery small- and medium-sized enterprises”, *Journal of Innovation & Knowledge*, Vol.7 No.3, 100194.
- O’Connell, V., and Cramer, N. (2010), “ The relationship between firm performance and board characteristics in Ireland”, *European Management Journal*, Vol.28 No.5, pp. 387–399.
- Öhman, P., and Yazdanfar, D. (2017), “ Short- and long-term debt determinants in Swedish SMEs”, *Review of Accounting and Finance*, Vol.16 No.1, pp. 106–124.
- Pantea, M., Gligor, D., and Aniş, C. (2014), “ Economic Determinants of Romanian Firms’ Financial Performance”, *Procedia - Social and Behavioral Sciences*, No.124, pp.272–281.
- Pervan, M., Pervan, I., and Ćurak, M. (2019), “ Determinants of firm profitability in the Croatian manufacturing industry: evidence from dynamic panel analysis”, *Ekonomika Istrazivanja-Economic Research*, Vol.32 No.1, pp. 968–981.
- Proença, C., and Neves, M. E. D. (2022), “ Determinants of Iberian companies’ performance: corporate boards and the nonlinearity of gender diversity”, *Gender in Management: An International Journal*, Vol.37 No.7, pp. 912–932.
- Qin, L., Lourie, B., Nekrasov, A., and Shevlin, T. (2022), “ Employee turnover and firm performance: Large-Sample archival evidence”, *Management Science*, Vol.68 No.8, pp.5667–5683.
- Rehman, M. U., and Suleman, M. (2013), “ Determination of the impact of working capital management on profitability: an empirical study from the cement sector in Pakistan”, *Asian Economic and Financial Review*, Vol.3 No.3, pp. 319–332.
- Shahrier, N. A., Ho, J. Y., and Gaur, S. S. (2020), “ Ownership concentration, board characteristics and firm performance among Shariah-compliant companies”, *Journal of Management & Governance*, Vol.24 No.2, pp. 365–388.
- Shan, Y. G. (2019), “ Managerial ownership, board independence and firm performance”, *Accounting Research Journal*, 32(2), 203–220.
- Soukhakian, I., and Khodakarami, M. (2019), “ Working capital management, firm performance and macroeconomic factors: Evidence from Iran”, *Cogent Business & Management*, Vol. 6 No.1.
- Tanaka, M., Bloom, N., David, J. M., and Koga, M. (2020), “ Firm performance and macro forecast accuracy”, *Journal of Monetary Economics*, No.114, pp.26–41.
- Vieira, E. S., Neves, M. E., and Dias, A. G. (2019), “ Determinants of Portuguese firms’ financial performance: panel data evidence”, *International Journal of Productivity and Performance Management* Vol. 68 NO.7, pp. 1323-1342.
- Yang, C. Y., and Chen, K. (2009), “ Are small firms less efficient? *Small Business Economics*, Vol. 32 No.4, pp. 375–395.

Yazdanfar, D. (2013), “ Profitability determinants among micro firms: evidence from Swedish data”, *International Journal of Managerial Finance*, Vol.9 No.2, pp. 151–160.

A multidimensional construct to measure capabilities of exporting firms

Margarida Vicente. Higher School of Technology and Management, Polytechnic Institute of Viseu, Portugal. margarida@estgv.ipv.pt

André Vaz. Coimbra Business School, Polytechnic Institute of Coimbra, Portugal. andre.p.vaz@hotmail.com

Anabela Marcos. Coimbra Business School, Polytechnic Institute of Coimbra, Portugal. amarcos@iscac.pt

Maria José Antunes. Higher School of Technology and Management, Polytechnic Institute of Viseu, Portugal. maria.antunes@estgv.ipv.pt

Abstract

Purpose: Exporting companies face a diversity of markets with specific needs, different legal and commercial barriers, and a highly competitive environment. To position themselves and expand in international markets, companies must develop distinctive capabilities that translate into an instrument of competitive advantage and better performance. To better understand performance differences in international markets, this study identifies the key capabilities that companies must possess to achieve export success. We identify the key dimensions of a multidimensional scale that helps measure the capabilities of exporting companies. Specifically, we focus on dynamic capabilities, technological capabilities, marketing capabilities, and entrepreneurial orientation. These capabilities are not exhaustive but represent capabilities that export managers can leverage to increase performance in international markets.

Methodology: This investigation is based on information collected from an online questionnaire administered to a sample of 267 exporting companies belonging to the central region of Portugal. The items used to measure the capabilities of exporting companies were adapted from the literature. We conducted an exploratory factor analysis and a confirmatory factor analysis to confirm the measurement model. A second-order factor model was also constructed for exporting companies' capabilities.

Results: The findings reveal that exporting firms' capabilities are formed by four dimensions: dynamic, technological, and marketing capabilities, and entrepreneurial orientation. The results also suggest a positive correlation between all four dimensions and export performance.

Originality: We operationalized export capabilities as a higher-order reflective construct by developing and validating a 27-item scale. The conclusions of this study offer valuable guidance for firms grappling with uncertainty about which organizational capabilities to develop in order to enhance performance when firms expand their operations abroad.

Keywords: *Dynamic capabilities; technological capabilities; marketing capabilities; entrepreneurship orientation; export performance.*

How to measure tourism sustainability? Proposal of a tourism sustainability index for Portugal

Sandra Bailoa. Polytechnic Institute of Beja, CiTUR (IPBeja), CEOS.PP (ISCAP), Portugal. sandra.bailoa@ipbeja.pt

Pedro Cravo. Polytechnic Institute of Beja, Portugal. pedro.cravo@ipbeja.pt

Abstract

Purpose: To analyse the evolution of sustainability indicators, present in the various national tourism plans in Portugal, and, subsequently, to propose the creation of a tourism sustainability index that can provide a perspective on the level of sustainable development.

Methodology: Qualitative methodology of document analysis of the main national tourism plans identifying the indicators used to measure sustainability over time and identifying the different possible methodologies for the implementation of a tourism sustainability index.

Results: It was determined the methodology that seems more suited to implement a tourism sustainability index for Portugal, taking in consideration the different indicators analysed and made available by the Portuguese Tourism Board.

Research limitations: This paper only proposes a methodology for the calculation of the sustainability index but does not calculate the index itself. This is subject of future work, which will also make it possible to verify the quality of the index itself and to adjust the methodology, if needed.

Originality: Although there have been authors that have proposed sustainability indices for other areas of activity, there has never been a tourism sustainability index proposal for Portugal. This may be an important contribution to facilitate the analysis and comparison of sustainable development among different cities/regions/countries.

Keywords: *Indicators; National strategic plans; Portugal; Sustainability index; Tourism*

1. Introduction

The development of tourism in Portugal has been the subject of concern among policymakers, which is why several strategic tourism development plans have been drawn up at national level. In these documents, sustainability has gained more and more importance over time not always accompanied by ways of measuring it. The objective of this paper is, firstly, to analyse the evolution of sustainability indicators present in the various national tourism plans in Portugal and, subsequently, seeking to overcome the difficulty of individual analysis of the 28 indicators used by the Portuguese Tourism Board, to propose the creation of a tourism sustainability index that can provide a more immediate perspective on the level of sustainable development of the country or the Portuguese regions. This research involved a qualitative methodology of documentary analysis of the main national tourism plans, with the objective of identifying the indicators that were considered to measure the different dimensions of sustainability over time. Also, the methodologies that have been used by various authors in defining sustainability indices were then identified seeking the most appropriate for defining the index.

This work is structured into five sections. The next section presents a brief literature review. The third section describes the methodology. The fourth section presents the results of the analysis. The last section presents the conclusions.

2. Literature Review

The concept of sustainable development became popular following the publication of the United Nations report known as the “Brundtland Report - our common future” (UN, 1987). In addition to this milestone, several events and documents published by the United Nations contributed to its popularization, like the 2030 Agenda (UN, 2020), which includes a set of 17 Sustainable Development Goals (SDG). It was at one of these events, namely the 'Earth Summit II', that took place in New York in 1997, that tourism was recognized as an economic sector that needs to develop in a sustainable way, to allow the attempt to reconcile the maximization of income from this activity with the minimization of its negative effects (Holden, 2008).

According to the UNEP/WTO (2005), the principles of sustainability refer to the environmental, economic and socio-cultural aspects of tourism development, and an appropriate balance must be established between these three dimensions to guarantee its long-term sustainability. Several authors agree that the sustainability of the activity should be based on the compatibility of these three dimensions (Pato & Duque, 2023; Almeida & Abranja, 2009; Santos, 2014). Although there is widespread recognition among academics, politicians, and society in general about the need for tourism to develop following the principles of sustainability, according to Sharpley (2021), its practical implementation has made little progress. Part of the difficulties in implementing sustainable results from the fact that tourism policies mostly follow a model of economic quantitative growth of tourists and revenues (Sharpley, 2021; Gössling et al., 2020; Torkington et al., 2020; Higgins-Desbiolles et al., 2019; Butcher, 2021). This merely quantitative and economic point of view ends up seeming inappropriate when facing crisis situations, such as the last financial crisis, climate change, the

Covid-19 pandemic and wars. Recent research points out, as a way to better face the various crises, the need for tourism to develop in a sustainable way, more aligned with the SDG (Gössling et al., 2020; Palacios-Florencio et al., 2021; Sharpley, 2021; Butcher, 2021; Pereira et al. 2022).

Another relevant aspect relates to how to measure the different aspects of sustainability. For some time, policymakers had a limited set of statistical data at their disposal to monitor tourism, which were not sufficient to visualize all the impacts that the activity could have. On the other hand, this limited number of tools did not help local destination decision-makers to make informed decisions to improve tourism in their destination (European Commission, 2016). At an international level, two important entities have produced indicators for sustainability related to tourism: the United Nations World Tourism Organization (UNWTO) and the Global Sustainable Tourism Council (GSTC). Both aim to contribute to the objectives of the UN 2030 Agenda (European Commission, 2016). The European Commission launched the European Tourism Indicator System (ETIS) in 2013, with the aim of helping destinations to monitor and measure their sustainable tourism performance, using a common, comparable approach based on 27 main indicators and 40 optional indicators (European Commission, 2016).

Individual indicators provide data in specific areas, but they do not give an aggregate measure of a country's tourism performance. On the other hand, composite indices allow us to synthesize complex information and can help to analyse the sustainable tourism performance of a country/region, despite their limitations. These metrics can be combined with other instruments to increase accountability and guide policymaking. According to Sachs et al. (2023) a combination of composite metrics is needed at the global, regional, and

subnational levels to inform policies towards achieving complex goals. In this regard, the Economist Intelligence Unit (2017) calculates a Sustainable Tourism Index for 10 countries (not including Portugal) and De Marchi et al. (2022) proposes a Tourism Sustainability Index measured according the ETIS criteria. In Portugal, several sustainability indicators are published by the Portuguese tourism board, but a composite index that demonstrates the country's performance on a global basis is not calculated.

3. Methodology

Carrying out this work implied the definition of two objectives. The first was to analyse the evolution of sustainability indicators present in the tourism plans that were implemented in Portugal over the last couple of decades. To achieve this objective, a qualitative methodology was used through a document analysis of the main strategic plans that have guided the development of the tourism sector in Portugal, namely: the National Strategic Plan for Tourism (PENT), version 2007 and version 2013; the 2015 plan Tourism 2020; the Tourism Strategy 2027 (ET27), from 2017; and the +Sustainable Tourism Plan 20-23, from 2021. The document analysis involved reading and analysing the plans to identify their main strategic objectives/goals and the indicators used to measure the different dimensions of sustainability over time.

Firstly, the main strategic objectives of each plan were identified. From the identification of the objectives, it was possible to recognise the corresponding indicators, that is, the metrics used to guide the achievement of the objectives. Thus, it was considered that an indicator is a measuring instrument that allows the interpretation of the reality or the evaluation of certain characteristics, and

that makes it possible, through comparative analysis, to measure objectives and draw conclusions for the definition of future intervention policies. The information was collected in table I. To analyse and evaluate the perspective of sustainability inherent to the objectives and indicators contained in the plans, the concept of UNEP/WTO (2005) which understands that the principles of sustainability refer to the environmental, economic, and sociocultural aspects of tourism development was the one taken in consideration.

The second objective was to propose the creation of a tourism sustainability index for Portugal which implied the analyses and identification of different possible methodologies for that implementation. Based on the literature review and document analysis, the methodology that seems more suited to implement a tourism sustainability index was selected. It is intended to follow the works of Lafortune et al. (2018) and Sachs et al. (2023), that are responsible for producing the UN SDG Index, Lafortune et al. (2024), that calculated the SDG Index for the European Union, The Economist Intelligence Unit (2017), that estimate a Sustainable Tourism Index for 10 countries (not including Portugal), and Abreu et al. (2023), that produced the Municipal Sustainability Index for Portugal. These works follow very similar methodologies to estimate the sustainability indices and are internationally recognised. It was also necessary to identify the indicators that would be part of the index and the database that could be used. For that, the use of the indicators (table II) and data made available by the Portuguese Tourism Board since 2017 is suggested.

4. Results and Discussion

4.1. Analysis of Strategic Plans for Tourism and Sustainability Indicators

In the period from 2006 to 2017, the sustainability of tourism that was present in the different plans (PENT – National Strategic Tourism Plan, versions of 2007 and 2013, and Tourism 2020 – 5 Principles for an Ambition) was mainly associated with the growth in volume of the activity in which the plans presented mainly quantitative objectives of growth in the number of tourists and receipts (Table I). Therefore, the indicators used were, above all, associated with the economic dimension, evaluating the quantitative increase in different aspects of tourism. Until then, the issue of sustainability was seen more as a marketing operation, with weak operationalization in practice. The period after 2017 starts with the publication of ET27 – Tourism Strategy 2027, the first plan to address sustainability in accordance with the concept defined by UNEP/WTO (2005). In this plan, sustainability is seen as a priority, with specific goals being defined for the three inherent aspects: economic, environmental, and social (table I). With the ET27, indicators are now effectively used to measure the dimensions of sustainability, even more evidently after the pandemic, with the publication of the +Sustainable Tourism Plan 20-23 (table I).

Table I: Comparison of the different plans and respective indicators

Plans	Objectives/Goals	Indicators
PENT 2007	➤ Annual growth in the number of international tourists above 5% and of receipts above 9%; ➤ Lisbon, Algarve and Porto and North regions with the greatest absolute contribution to growth;	• Number of international tourists • Tourism receipts

	➤ Annual growth in national tourism of around 2.5%, enhancing the sustained development of regions and hubs and combating seasonality; ➤ Increase in the sector's contribution to the economy, becoming one of the main drivers of growth in the Portuguese economy.	• Number of foreigners overnight stays by region • Number of national tourists • Number of national overnight stays • Weight of tourism receipts in GDP • Weight of tourism on Employment
PENT 2013	➤ In terms of overnight stays, to grow at an annual average of 3.1% in the period 2012-2015; ➤ In terms of receipts, to grow 6.3% per year in same period; ➤ The outcome of the tourism balance will evolve at an annual average growth rate of 9.5% until 2015.	• Number of overnight stays • Tourism receipts • Outcome of the tourism balance
Tourism 2020	➤ To create conditions so that receipts of tourism's private sector grow above the average of competitors and appear in the top-10 of the most competitive destinations worldwide.	• Tourism receipts
Tourism Strategy 2027	➤ Economic sustainability goals: ▪ To increase demand throughout the territory: 80 million overnight stays; ▪ To grow in value: 26 billion euros in receipts; ➤ Social sustainability goals: ▪ To expand tourist activity throughout the year, reaching the lowest seasonality index ever in 2027; ▪ To double the level of secondary and post-secondary education qualifications in tourism (from 30% to 60%); ▪ To ensure that tourism generates a positive impact on residents' populations; ➤ Environmental sustainability goals: ▪ To ensure that more than 90% of tourism companies adopt measures to efficiently use energy and water and develop environmental waste management actions.	• Number of overnight stays • Tourism receipts • Level of qualifications in tourism • Seasonality index • Residents' level of satisfaction with the tourism development process • Percentage of companies that adopt efficient water, energy, and waste management measures

+Sustainable Tourism Plan 20-23	Goals until 2023: ➤ 75% of accommodation companies with energy, water and waste management systems; ➤ 75% of accommodation companies that do not use Single-Use Plastics; ➤ 25,000 adherents to the Clean & Safe Seal; 30,000 professionals trained and 1000 audited; ➤ 50,000 professionals trained in the areas of sustainability; ➤ 200 international references to Portugal associated with sustainability.	• Number of accommodation companies with good energy, water and waste management practices implemented • Number of accommodation companies that do not use Single-Use Plastics in their operations • Number of adherents, trained professionals and audits carried out • Number of participants in training/qualification actions • Number of articles published in the media

Source: Own elaboration, based on Turismo de Portugal (2007, 2013, 2015, 2017, 2021)

4.2. Proposal of a Tourism Sustainability Index for Portugal

Considering that the most recent plans propose a wide mix of indicators to assess the sustainability of tourism, it may be difficult to analyse tens of different indicators to get a quick perspective of the sustainability level of the Portuguese tourism. With this in mind, it is proposed the creation of a composite index that can provide a more immediate perspective on the level of sustainable tourism development of the country or the regions. The data source for the index is based on the Sustainable Tourism Indicator System (SITS), developed by Turismo de Portugal (table II). The SITS⁴ consists of a set of indicators that have been implemented since 2017 to monitor the three dimensions of sustainability, defined

⁴ On the website TravelBI, managed by the Portuguese Tourism Board, it is possible to have access to the detailed information on each indicator defined in the SITS.

according to the recommendations from international organizations (WTO, Eurostat), framed by the ET27 and following the focus of the UN SDG.

Table II: Sustainable Tourism Indicator System (SITS)

Environmental	Economical	Social
▪ Bathing waters considered good and excellent ▪ Environmental expenses per 1000 inhabitants ▪ Energy consumption and CO2 emissions from tourism ▪ Accommodation establishments with an environmental certification ▪ Accommodation establishments that optimize water consumption ▪ Accommodation establishments that optimize energy consumption ▪ Accommodation establishments that separate waste ▪ Urban solid waste attributed to tourism ▪ Seaside area with Blue Flag ▪ CO2 emissions on air transport ▪ Dependence of long-haul markets	▪ Tourism employment by work duration and professional situation ▪ Accommodation establishments open all year round ▪ Average length of stay ▪ Overnight stays ▪ Tourism receipts ▪ Average spending by tourist ▪ Number of tourists ▪ Average revenue by overnight stay ▪ Tourist receipts as percentage of GDP ▪ Occupancy rates ▪ Seasonality rate ▪ Dependence on the 3 main markets	▪ Accommodation establishments accessible for guests with special needs ▪ Tourism density ▪ Tourism intensity ▪ Number of beds available per 1000 residents ▪ Tourism employment by gender, age group, and education

Source: Turismo de Portugal, 2024

To build the Index the methodologies of Lafortune et al. (2018), Sachs et al. (2023), Lafortune et al. (2024), The Economist Intelligence Unit (2017), and

Abreu et al. (2023) are followed. These are very similar methodologies to estimate sustainability indices.

The procedure for calculating the Index comprises some steps. The first consists of the definition of limits and normalization of indicators, because each indicator has its own unit of measurement, and it is necessary to rescale the data to ensure comparability across indicators. Before they can be aggregated, all indicators must be standardized, which means that they are all converted on a scale from 0 to 100, with 0 denoting worst performance and 100 describing the optimum.

To do this, it is necessary to define limit values, which is critical as it influences the results. Thus, it is necessary to define a maximum value, which represents the objective to be achieved, and a minimum value, which represents the starting point (for example, value for the year 2017 as it is the first from which the indicators are published) or the minimum acceptable value. After establishing the upper and lower bounds, variables will be linearly transformed to a scale between 0 and 100 using the following rescaling formula: $x' = \frac{x - \min(x)}{\max(x) - \min(x)} \times 100$ where x is the raw data value; $\max/\min$ denote the upper and lower bounds, respectively; and x' is the normalized value after rescaling. The equation ensures that all variables are expressed as ascending variables, which means that higher values indicate a better performance. Thus, the data that will be obtained after rescaling becomes easy to interpret and compare.

The next phase is aggregation of the rescaled indicators. For that the methodology of the SDG Index. Lafortune et al. (2018) and Sachs et al. (2023) will also be followed. These authors argue that there is little consensus across different epistemic communities on assigning higher weights to some SDGs over others and opted to assign an equal weight to every SDG, to reflect policymakers'

commitment to treat all SDGs equally. Following that, equal weights will be used for aggregating indicators' scores into the sustainable dimensions' scores, and for aggregating dimensions' scores into the overall index score. This means that it is assumed that all goals and dimensions have a similar significance and are important to assure tourism sustainability. Thus, and following Sachs et al. (2023), the simple arithmetic mean of indicators will be used to obtain each dimension's score, and dimension scores will then be averaged to obtain the final Index score.

The Index will present a value that shows the country's position between the worst (0) and the best (100) regarding its sustainable tourism development. For example, a value of 50.0 means that, on average, 50% of the path to sustainable tourism development will be completed. As a score is calculated for each dimension, the evolution of performance for each one can also be analysed. The index could also be generalised to the NUTS II and III regions or even the local or municipal level.

5. Conclusion

This study aimed to analyse the evolution of means of measuring sustainability in tourism in Portugal and propose an index to measure the level of sustainable tourism development of the country or the regions. Regarding the first objective, the analysis carried out allowed us to identify the year 2017 as the turning point, when the ET27 was published, the first strategy to address sustainability as a priority and that defined a set of indicators to measure it. Although the SITS considers a broad set of indicators, the social dimension presents itself as the one with the lowest quantity and the cultural aspects are not considered at all.

Because of this, it is suggested to improve the SITS indicator matrix by introducing new indicators in the sociocultural dimension, and, particularly, adding some for the cultural aspects. A better alignment between the objectives of the strategic plans for the tourism sector and the indicators defined for their monitoring is also suggest.

In relation to the second objective, the research carried out revealed the non-existence of a tourism sustainability index in Portugal. The index proposed is the result of our research in the area, a work in progress. The methodology followed has some limitations such as the fact that it assign the same weight to all indicators and dimensions, something that is also recognized by the authors of the SDG Index. The calculation of the averages of all indicators for a sustainability dimension might hide areas of policy concern if a country performs well on most indicators but faces serious shortfalls on one or two metrics within the same dimension. However, as in the case of SDG Index, it is an option that can be followed and that allows for equal priority and importance to be given to all areas of sustainability.

On the other hand, the alignment of the methodology with the work developed by National, European, and International statistics publishing entities, allows for the standardization of processes and criteria and leads to a greater degree of comparability. A uniformized scoring system can allow the comparison of levels of sustainability and the monitoring of the evolution of tourism developments towards the sustainability principles and its contribution to the SDGs. Therefore, it is suggested, as future work, to verify the quality of the index and to carry out an empirical study that allows the calculation of the tourism sustainability index, analysing its evolution, as well as for each dimension, allowing to assess the compliance with the sustainability goals.

References

- Abreu, J., António, J., Cerol, J., Ferreira Reis, R. & Ribeiro, A. (2023). *Índice de Sustentabilidade Municipal 2023*. Universidade Católica Portuguesa.
- Almeida, I. & Abranja, N. (2009). Turismo e Sustentabilidade. *Cogitur – Journal of Tourism Studies* 2(2).
- Butcher, J. (2021). Covid-19, tourism and the advocacy of degrowth. *Tourism Recreation Research*, 48(5), 633-642.
- De Marchi, D., Becarelli, R. & Di Sarli, L. (2022). Tourism Sustainability Index: Measuring Tourism Sustainability Based on the ETIS Toolkit, by Exploring Tourist Satisfaction via Sentiment Analysis. *Sustainability* 14(13), 8049.
- European Commission (2016). *European Tourism Indicator System for sustainable destination management*. European Commission.
- Gössling, S., Scott, D. & Hall, C. (2020). Pandemics, tourism and global change: a rapid assessment of COVID-19. *Journal of Sustainable Tourism* 29(1), 1-20.
- Higgins-Desbiolles, F., Carnicelli, S., Krolkowski, C., Wijesinghe, G. & Boluk, K. (2019). Degrowing tourism: Rethinking tourism. *Journal of Sustainable Tourism* 27(12), 1926–1944.
- Holden, A. (2008). *Environment and Tourism* (Second Edition). Routledge.
- Lafortune, G., Fuller, G., Moreno, J., Schmidt-Traub, G. & Kroll, C. (2018). *SDG Index and Dashboards: Detailed Methodological Paper*. Sustainable Development Solutions Network.
- Lafortune, G., Fuller, G., Kloke-Lesch, A., Koundouri, P. & Riccaboni, A. (2024). *European Elections, Europe's Future and the Sustainable Development Goals: Europe Sustainable Development Report 2023/24*. SDSN & SDSN Europe and Dublin University Press.
- Palacios-Florencio, B., Santos-Roldán, L., Berbel-Pineda, J. & Castillo-Canalejo, A. (2021). Sustainable Tourism as a Driving force of the Tourism Industry in a Post-Covid-19 Scenario. *Social Indicators Research* 158, 991-1011.
- Pato, M.L. & Duque, A.S. (2023). Strategic Issues in Portuguese Tourism Plans: An Analysis of National Strategic Plans since 2000. *Sustainability* 15(7), 5635.
- Pereira, P., Zhao, W., Symochko, L., Inacio, M., Bogunovic, I. & Barcelo, D. (2022). The Russian-Ukrainian armed conflict will push back the sustainable development goals. *Geography and Sustainability* 3(3), 277-287.
- Sachs, J., Lafortune, G., Fuller, G. & Drumm, E. (2023). *Sustainable Development Report 2023: Implementing the SDG Stimulus*. Dublin University Press.
- Santos, N. (2014). Turismo, gestão e território. *Caderno Virtual de Turismo*, Edição especial: Hospitalidade e políticas públicas em turismo 14(1), 66-86.
- Sharpley, R. (2021). On the need for sustainable tourism consumption. *Tourist Studies*, 21(1), 96-107.
- The Economist Intelligence Unit (2017). *The Sustainable Tourism Index: Enhancing the Global Travel Environment*. The Economist.

- Torkington, K., Stanford, D. & Guiver, J. (2020). Discourse(s) of growth and sustainability in national tourism policy documents. *Journal of Sustainable Tourism* 28(7), 1041-1062.
- Turismo de Portugal (2007). *Plano Estratégico Nacional do Turismo: Para o Desenvolvimento do Turismo em Portugal*. Turismo de Portugal.
- Turismo de Portugal (2013). *Plano Estratégico Nacional do Turismo: Revisão e Objetivos 2013-2015*. Turismo de Portugal.
- Turismo de Portugal (2015). *Turismo 2020: Cinco princípios para uma ambição*. Turismo de Portugal.
- Turismo de Portugal (2017). *Estratégia Turismo 2027: Liderar o Turismo do Futuro*. Turismo de Portugal.
- Turismo de Portugal (2021). *Plano Turismo +Sustentável 20-23*. Turismo de Portugal.
- Turismo de Portugal (2024). *Sustentabilidade*. TravelBI.
<https://travelbi.turismodeportugal.pt/sustentabilidade/sustentabilidade/>
- United Nations (1987). *Report of the World Commission on Environment and Development*. United Nations.
- United Nations (2020). *The 17 Goals*. United Nations: Department of Economic and Social Affairs.
- United Nations Environment Programme/World Tourism Organization (2005). *Making tourism more sustainable: a guide for policy makers*. UNEP/WTO.

Using a maturity model in a bicycle component manufacturing company to assess supply chain sustainability

Elisabete Correia. Polytechnic University of Coimbra, Coimbra Business School|ISCAC, Bencanta, 3045-601 Coimbra, Portugal. ecorreia@iscac.pt

Abstract

Purpose: This paper proposes the application of a Maturity Model (MM) to assess the level of sustainability maturity of a bicycle component manufacturing company. The model allows for diagnosing the state of implementation of sustainability practices and identifying opportunities for sustainability improvement. At the same time, by testing a model previously developed with companies from another sector, we aim to increase its validation and reliability.

Methodology: This study extends a recently developed Sustainability Maturity Model for Supply Chain (SMMSC) found in the literature, and the approach followed in its development, to a company that manufactures bicycle components. The SMMSC used was developed following De Bruin's methodology, which includes several phases: Scope, Design, Populate, and Test. Five companies from the mouldmaking industry participated in the construction of the MM (in the Design, Populate, and Test phases). They helped to identify the components and sub-components of the model, define how these components are assessed, and how to apply the discrimination criteria needed to move from one maturity level to another. The model was tested regarding its Components, Maturity levels, ease of Understanding and Use, and its Usefulness and Practicality, based on recommendations in the literature on validating MMs. The case study was conducted on a company in a different sector than the model development, allowing us to obtain rich and varied information for the application and testing of the MM. Several data collection tools were used. These included five interviews, document collection and analysis, and four questionnaires.

Results: An increasing number of organizations recognize the importance of integrating sustainability into their internal operations and supply chain in response to expectations and pressures from various stakeholders. Because sustainability is a dynamic process of change over time, organizations need tools to monitor their progress toward sustainability. Maturity models (MMs) have characteristics, such as their evolutionary perspective and flexibility, that make them a powerful tool to support the integration of

sustainability into organizations and supply chains. The applied MM considers five maturity levels and three integrative perspectives: Intra- and inter-organizational sustainability practices involving different supply chain partners; the economic, social, and environmental dimensions of sustainability; and four critical areas for sustainability: sustainability governance, product and process level, customer and supplier management, and stakeholder focus. The bicycle component manufacturer has a high level of global maturity and is already making great efforts to implement sustainability practices. However, it still needs to make greater efforts at the level of its supply chain and in the social dimension.

Originality: We increase the external validity of a previously developed MM by extending it to a company independent of the model's development. The MM was previously developed based on an extensive literature review and improved and tested using several case studies belonging to the same sector. Despite the growing interest in sustainability supply chain MMs, the few that exist have several shortcomings, including the lack of essential elements in each model and the lack of validation. This study will contribute to the improvement and robustness of a comprehensive sustainability MM so that it can be used in future research and practice.

Keywords: *Maturity Model; Sustainability; Supply chain; Bicycle company; Sustainability assessment; TBL approach.*

References

- Correia, E., Carvalho, H., Azevedo, S.G. & Govindan, K. (2017). Maturity Models in Supply Chain Sustainability: A Systematic Literature Review. *Sustainability*, 9 (1) (64).
- Correia, E., Garrido-Azevedo, S., & Carvalho, H. (2023). Supply Chain Sustainability: A Model to Assess the Maturity Level. *Systems*, 11(2), 98.
- De Bruin, T., Freeze, R., Kaulkarni, U. & Rosemann, M. (2005). Understanding the Main Phases of Developing a Maturity Assessment Model. In Campbell, B, Underwood, J, & Bunker, D (Eds.) *Australasian Conference on Information Systems (ACIS)*, November 30 – December 2, 2005, Australia, New South Wales, Sydney.
- Ferraro, S., Leoni, L., Cantini, A., & De Carlo, F. (2023). Trends and recommendations for enhancing maturity models in supply chain management and logistics. *Applied Sciences*, 13(17), 9724.
- Pavan, R. O., Ferreira, M. A., Stefanelli, N. O., & Leal, G. C. L. (2023). Maturity models in SSCM: A systematic review aimed at consolidating models and outlining possibilities for future research. *Benchmarking: An International Journal*, 30(10), 4076-4099.
- Pigosso, D. C., Rozenfeld, H., & McAloone, T. C. (2013). Ecodesign maturity model: a management framework to support ecodesign implementation into manufacturing

- companies. *Journal of Cleaner Production*, 59, 160-173.
- Reefke, H., & Sundaram, D. (2018). Sustainable supply chain management: Decision models for transformation and maturity. *Decision Support Systems*, 113, 56-72.
- Santos, D. A., Quelhas, O. L. G., Gomes, C., F.S., Zotes, L. P., França, S. L. B., Souza, G. V. P. S, & Santos, S. S.C. (2020). Proposal for a maturity model in sustainability in the supply chain. *Sustainability*, 12(22), 9655.
- Yin, R.K. *Case Study Research: Design and Methods*; Sage: London, UK, 2003.

Beyond Burgers: A Historical Analysis of Food Advertising as A Tool of Americanization in The Turkish Press (1950s-1960s)

Muhammet Erbay. Selcuk University, Tourism Faculty, Turkey, ISAG – European Business School and CICET-FCVC, Porto, Portugal. merbay@selcuk.edu.tr

Abstract

Purpose: This study examines the Turkish press advertisements and the adaptation of American culture in Turkey from 1950 to 1960. The Democrat Party brought about significant changes in Turkish politics, economy, and culture. Purposes of investigation First, it explores the ways in which American products and cultures were promoted in Turkey, and the subsequent impact on society.

Methodology. Analyzing periodicals such as 'Hayat Mecmuası' and other publications from the 50s and 60s using archival data, text analysis, and qualitative content analysis. The study analyzes advertising frameworks in Turkey and the United States to evaluate the impact of cultural exchange and influence.

Results: Critics found that Turkish commercials mirrored American ones, especially those about family, health, and modern life. These ads showed women becoming more influential in family management and marketed American products as important for modern, healthy life. This study showed that advertising influenced consumer preferences and increased Turkey-US cultural exchanges.

Limitations in Research: Limited access to historical documents and magazine and ad selection. The study focuses on print media ads, therefore it may omit some media effects of the years examined.

Originality: This research links mass communications and food culture by examining the cultural effects of commercials, contributing to media and advertising histories, culinary history in Turkey, and westernization studies. Media lenses show how advertising exchanges culture and conveys messages, shedding light on Americanization's colonizing effects on Turkish society.

Keywords: *Media and advertising, History of advertising, Party period, Food history, Westernization, Gastronomy*

Introduction

The research aims to analyze the impact of American cultural influence on food product advertisements in the Turkish press from 1950-1960. It specifically focuses on the effects of relief Marshall Aid and the Democrat Party's liberal economic strategies. The press played a significant role in shaping American culture, educating people about America, promoting American products, and presenting a perspective on Turkish social culture as perceived by America. By conducting an analysis of text, this study aims to explore the historical archive and typography of Turkey, specifically focusing on newspapers and magazines. The main question to be addressed is whether Turkish advertisements reflected Western trends and if the media played a role in creating a shared culture. This research addresses knowledge gaps related to the cultural and consumer aspects of the Democrat Party era in disciplines such as History, Sociology, Communication, Advertising, and Gastronomy. It recognizes the significance of food products as valuable historical items.

The Turkish-American Relations from 1950-1960

Since Turkey did not engage in WWII the country had to endure certain economic hardships; therefore, it was allocated help by Americans through the Marshall Plan. And the Democrat Party carried out policies that were in tune with America's strategic needs of NATO and the modernization of the economy. This period can be characterized by the development of the turbulence in the American – Turkish relations that the late 1940s – the early 1950s became a significant necrosis for the political and cultural life of Turkey.

Dietary Practices in Turkey from 1950-1960

The process of economic modernisation in Turkey also meant changes in the divergent consumption and the focus was made on such dishes and names of kitchens making a reference to the West. Items such as margarine and tomato paste commonly imported from America replaced the local more natural elements of Turkish food due to the persuasive influence of Americanized advertisement.

Socio-Cultural Transformation in Turkey during 1950-1960 and the Influence of America

Turkey established a partnership with the United States following World War II in order to counter the expansion of the Soviet Union. This relationship had a significant impact on the living conditions and preferences of the Turkish population, as they adopted American consumer culture (Bulanık, 2020). The Democratic Party's economic policies led to a boost in American-style goods consumption. Imports in other western countries increased while exports decreased after the war (Keskin, 2012). The media played a significant role in promoting the acquisition, consumption, and use of American products. The activities had an impact on both international relations and the daily lives of people (Küçükkülahlı, 2018, p. 191). Highlight modified consumption patterns, changes in social life, shifts in house furnishings, and evolving women's roles. Modern Turkish women were influenced by American films, journals, and lifestyles, leading them to imitate and adopt an American type (Koçer, 2009). The wholesale and retailing businesses of Migros and Gima played a significant role in influencing consumption patterns towards a more westernized style. The identification of America's opponents as communists bolstered pro-American sentiment (Küçükkülahlı, 2018).

Comparative Analysis of Advertisements in the Turkish and American Press from 1950-1960

In the 1950s and 1960s, New York was America's most prominent advertising scene. Local ads copied American ads and featured a family with static cardboard cutouts of the dad, wife, and children. Female characters focused on family, cooking, and cleaning, while men worked and were businesslike.

TV ads used brilliant colors, pretty pictures, and famous faces. Target groups were identified by marketing different products. Margarine and soap advertised to women about nutrition, health, and attractiveness. Candy, snacks, and morning cereals have appealing colors and packaging to attract youngsters (Shu and Kroller, 1999; Koçer, 2009).

In the 1960s, TV in the US featured bright ads, animation, and catchy tunes. Because television was a privilege in Turkey, ads appeared in newspapers, magazines, and radios. Therefore, marketing adaptability changed with new societal ideals and customer behaviors. More women attended social events and retailers sold housework-easing items. Recent food advertising emphasized realism, tone, speed, and convenience, with a concentration on canned food, breakfast, cereals, ready meals, and frozen foods (Ayaz, 2022; Bulanık, 2020).

Analysis of Food Products and Advertisements in Turkey from 1950-1960

In 1948, with the initial assistance of 10 million dollars from the USA, the Turkish economy became reliant on foreign support. The domestic apparels started to feature in magazines, thanks to the impact of the speeches by the then Prime Minister Adnan Menderes and the belief that women played a crucial role in society. The body of women's magazines and newspaper sections focused on

topics such as maintaining family health, enhancing appearance, and featuring recipes inspired by American counterparts.

According to Koçer (2009), Turkish women were encouraged to adopt an American lifestyle and buy American products. Advertisements for these items were often included alongside the articles. Food was the next topic to be discussed, and the commercials showcased confident women who were skilled at preparing nutritious meals. There was a relatively lower emphasis on advertising consumer goods, although there were a few exceptions in domestic products such as margarine and pasta. The period of 1950-1960 saw the introduction of numerous new food products into the market, with regular advertisements in newspapers and magazines, as mentioned in Madendağ, 2018.

Figure 1. An example of the commodification of women in period advertisements



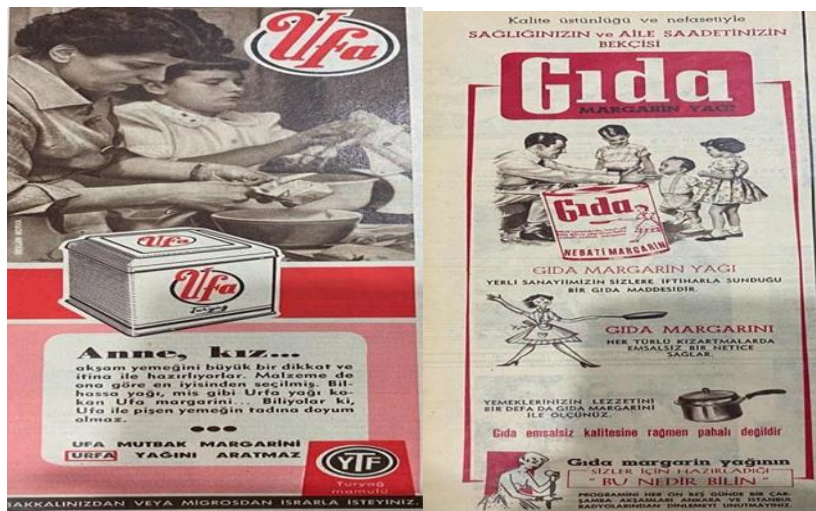
Source (Hayat Mecmuası, 1958)

Margarine

The communities involved in the implementation of the National Economic Policy primarily consumed salted butter sourced from peasants and small traders.

During the 1950s, UNILEVER began its operations in Turkey under the name UNILEVER-IŞ. They partnered with İş Bank and established a production factory in Istanbul in 1951, focusing on the production of soaps and margarine. In 1952, Sana and Vita were introduced to the market. Although Vita was more affordable and easier to produce, consumers ultimately preferred Sana. UNILEVER had to invest in extensive promotions to educate the public about what "breakfast margarine" was. They even analyzed local butter to create a margarine that tasted like the real thing, as Emiroğlu explained.

Figure 2. Advertisements of domestic margarine brands



Source (Hayat Mecmuası, 1959; Hayat Mecmuası, 1959)

The "Sana" and "Vita" brands advertisements primarily relied on appealing to emotions. They were published in reputable magazines that focused on family, health, and nutrition. The advertisements depicted women as healthy and happy mothers or wives, diligently preparing meals for their families and emphasizing the importance of margarine in the kitchen. With the success of Sana and Vita,

local producers have also entered the margarine market with brands like Tama, Tarin, and Bima, using similar marketing techniques.

Figure 3. Vita and Sana Brand Margarine Advertisement



Source (Hayat Mecmuası, 1957; Hayat Mecmuası, 1957)

The Historical Evolution of Pasta in Turkish Cuisine

Since the 1950s, Turkish gastronomic culture has included pasta. First, pasta was made in small, non-structural workshops. Pasta production expanded in simple factories in the 1950s and 1960s. The first Turkish noodle factory was founded by Ahmet Pasha in 1836. The earliest notable pasta house was Kazilas İsmatyos Makaronya Factory, founded in 1856. Pasta spread and grew geometrically in 1930s concern feeding, especially in hospitals and schools. Early production was in Istanbul and Izmir, but Ankara became the main manufacturing center due to raw material transportation.

The first Turkish pasta company was Piyale, founded in 1921. The monthly periodicals and customer incentives like prizes helped Piyale gain popularity from

1958. Thus, Piyale developed through exports by the 1960s, but the 2001 economic crisis caused troubles.

Another 1938-founded firm, Huber Biscuit and Cake Factory, helped bring pasta manufacture to Ankara's Yayla Semolina and Pasta Factory. He noted that Yayla pasta was the first Turkish brand to use a pennant as its emblem after 1950 with the phrase 'whole food'.

Figure 4. Yayla Pasta Advertisement



Source: Vatan Newspaper, 1940

Today recognized as Nuh'un Ankara Pasta, the business was launched in 1950 by a small workshop in Ankara. Thus, concomitant with the sale of the plant, the production of filters rose; in 1956 a new, large plant was established. The name of the commercial brand prior to 1961 was Ankara Makarnası which was later changed to Nuh'un Ankara Makarnası. Advertisements were placed in popular magazines such as Akis, Hayat, and Akbaba that popularize promotions; appealing to care of a mother or images of beautiful women provide a human aspect to the brand (Emiroğlu, 2011).

Figure 5. Piyale and Nuh'un Ankara Makarnası Pasta Advertisements



Source: *Hayat Mecmuası*, 1957; *Akis Magazine*, 1960

The Evolution of Canned Food, Ready Meals, and Jams in Turkey

Canned food first appeared in Turkey through Alaeddin Kemerli's sardine factory in 1928.⁵ However, it wasn't until the 1950s that canned and prepared meals became a recognized part of Turkish consumption. TAMEK, known for its tomato paste and juice, proudly claims to have pioneered the canning of Turkey's ready-to-eat food back in 1959. However, even Bima was promoting canned peas, peach compote, and tomatoes in 1955. The growing demand for tomato paste is directly linked to the development of the sector.

The 1950s and 1960s saw the introduction of exciting and unfamiliar dishes, which required more effort to prepare. These included items like pickles, stuffed vine leaves, and easily digestible meals like red kidney bean stew. The tradition of consuming jams and a variety of marmalades made from fresh fruits and preserved compotes of fruits like cherry, pear, apricot, and peach has also been enhanced. TAMEK excelled in this field and their advertisements in *Hayat*

⁵ Retrieved on 20.12.2023 <https://www.gelibolu.com/gelibolu-sardalyasi-uzerine>

Mecmuası reflected the societal norms, emphasizing homemaking and including topics like health and happiness. The ads targeted women with bold slogans and showcased various products, ranging from tobacco-containing vessels to food items like leaf rolls, Italian tomato sauce, and olives compotes. The advertisements emphasized women's roles and responsibilities as mothers.

Figure 8: Tamek Canned Food Adverts



Source: Hayat Magazine, 1958; Hayat Magazine, 1959)

Confectionery Advertising in Turkish Newspapers (1950s-1960s)

The Turkish confectionery brands from the 1950s and 1960s, such as Ali Muhiddin Hacı Bekir and Mabel, relied on simple newspaper ads that emphasized the brand's heritage and the superior quality of their confectionery products, rather than using graphic representations (Emiroğlu, 2011; Mabel Chocolate Advertisement, 1950). The ads tended to be direct and confident, focusing primarily on concise headlines. Most advertisements primarily relied on text rather than visuals, with a particular focus on portraying females in a certain way. Kent Gıda, Baylan Patisseries, Lebon Patisserie, Savoy Patisserie, Saray Patisserie, and Güllüoğlu Baklava primarily used text from the Yeni İstanbul Newspaper

(1950). Lebon Patisserie and Güllüoğlu incorporated femininity, although not as often as the other brands. This suggests that they focused more on emphasizing value and quality, as well as encouraging repeated purchases through the use of brand mascots. The appeal of their products goes beyond simply relying on sex appeal.

Conclusion

In this study, food product advertisements in the Turkish print media between 1950 and 1960 and how these advertisements interacted with the exemplary American culture of the period were examined. As a result of the analysis, we see that the advertisements in this period were not simply marketing tools, but also a means of communication between the policies of the period and the public. The fact that women formed the family and looked visually attractive caused them to be the main figure in the advertisements of the period, especially in the promotion of food products. With the aim of educating women and creating women similar to American women, advertisements became a dictating communication tool and were used to integrate the social structure with the determined cultural characteristics.

References

- Ayaz, Y. Y. (2022). *Reklam Dünyasında Altın Çağ: Kavramsal Bir Çalışma*. İstanbul: Yeni Medya Elektronik Dergi.
- Baytal, Y. (2023). *Demokrat Parti hükümetleri döneminde ekonomi politikaları (1950-1960)*. In M. S. Bilgin (Ed.), *100. Yılında Türkiye Cumhuriyeti'nde Siyasi, Sosyal Ve Ekonomik Hayat* (pp. 189-223). Ankara: Atatürk Araştırma Merkezi.

- Bulanık, G. E. (2020). *1950'li yıllarda Türkiye'de gündelik hayatta yaşanan dönüşümler: Adana ili üzerine bir araştırma*. Ankara: Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü.
- Derya Bengi, E. Z. (2020). *100. yılında Cumhuriyet'in popüler kültür haritası (1950-1980) "Belki Duyulur Sesim"*. İstanbul: Yapı Kredi Sanat Kültür Yayıncılık.
- Emiroğlu, K. (2011). *Gündelik hayatımızın tarihi*. İstanbul: Türkiye İş Bankası Kültür Yayınları.
- Eryılmaz, A. (2020). *Geçmişten günümüze zeytin ve zeytinyağı (Dünya-Akdeniz-Türkiye)*. Mart Matbaa.
- Fikret Yaman, G. G. (2022). *Bilinçaltı reklamlarda duygusal çekiciliklerin kullanımı*. *Idea Studies Journal*, 971-979.
- Gortner, W. A. (1975). *Nutrition in the United States, 1900-1974*. *Cancer Research*, 3246-3253.
- Kaus, J. (2017). *The melting pot: America, food and ethnicity 1880-1960*. The University of Akron, 1-37.
- Keskin, Y. Z. (2012). *Demokrat Parti iktidarı ve günümüze yansımaları*. Erzincan Üniversitesi Sosyal Bilimler Enstitüsü Dergisi.
- Koçer, D. N. (2009). *Demokrat Parti döneminde kadın: 1950-1960 arası kadın dergilerinde kadın imajı*. İstanbul: Marmara Üniversitesi.
- Küçükkuşlahlı, S. (2018). *1950-1960 dönemi iktisat politikalarının toplumsal hayata etkileri*. İstanbul: Yıldız Teknik Üniversitesi Sosyal Bilimler Enstitüsü.
- Madendağ, G. (2018). *Demokrat Parti döneminde Adana'da gündelik hayat*. Sakarya: Sakarya Üniversitesi Sosyal Bilimler Üniversitesi.
- Nalçinkaya, Ö. (2022). *Sana reklamlarının değerlendirilmesi*. Ankara: Ankara Hacı Bayram Veli Üniversitesi.
- Varlık, M. B. (2021). *Türkiye'de makarna sanayiinin geçmişi üzerine birkaç not*. *Kebikeç İnsan Bilimleri İçin Kaynak Araştırmaları Dergisi*, 273-288

Newspaper and Magazine

- Atatürk Orman Çiftliği Reklamı*. (1954, April 21). *Vatan Gazetesi*, p. 10.
- Mabel Çikolata Reklamı*. (1950, September 11). *Yeni İstanbul Gazetesi*, p. 8.
- Reklamlar*. (1949, October 3). *Ulus Gazetesi*.
- Tozanoğlu, R. (1955, August 15). İnhisarların çay atelyesinde bir saat... Hulusi Karadeniz'in Rusya'dan getirdiği çay: Rize çayı. Akşam Gazetesi, p. 3.*
- Vatan Gazetesi*. (1940, December 5).
- Akşam Gazetesi*. (1954, January 10), p. 8.
- Hayat Mecmuası*. (1957, December 27), p. 24.
- Hayat Mecmuası*. (1957, December 6), p. 14.
- Hayat Mecmuası*. (1957, June 28), p. 24.
- Hayat Mecmuası*. (1957, March 8), p. 26.

- Hayat Dergisi.* (1957, November 29), p. 20.
Hayat Mecmuası. (1958, February 14), p. 26.
Hayat Dergisi. (1958, December 5), p. 25.
Hayat Mecmuası. (1959, December 4), p. 12.
Hayat Mecmuası. (1959, December 18), p. 22.
Hayat Dergisi. (1959, May 1), p. 9.
Hayat Dergisi. (1959, March 27), p. 15.
Hayat Dergisi. (1959, December 11), p. 24.
Hayat Dergisi. (1959, September 11), p. back cover.
Akis Dergisi. (1960, October 3), p. 36.

Session – “Innovative Approaches in Accounting, Auditing, and Financial Management”

Chair: António Cunha

Key Audit Matters disclosure in the Portuguese Public Health Sector

Natália Lemos. Research Centre on Accounting and Taxation, Polytechnic University of
Cávado and Ave, Portugal, nslemos@ipca.pt

Kátia Lemos. Research Centre on Accounting and Taxation, Polytechnic University of
Cávado and Ave, Portugal, Klemos@ipca.pt

Lurdes Silva. Research Centre on Accounting and Taxation, Polytechnic University of
Cávado and Ave, Portugal, lsilva@ipca.pt

Patrícia Quesado. Research Centre on Accounting and Taxation, Polytechnic
University of Cávado and Ave, Portugal, pquesado@ipca.pt

Sara Serra. Research Centre on Accounting and Taxation, Polytechnic University of
Cávado and Ave, Portugal, sserra@ipca.pt

Abstract

Purpose: This study aims to conduct an exploratory analysis of the key audit matters disclosed in the auditor's reports of the public business entities of the Portuguese public health sector from 2017 to 2021.

Methodology: Based on the information on the National Health Service website and, considering the availability of the accountability documents, the categories of key audit matters were identified using an exploratory content analysis.

Results: The exploratory analysis of the content of the auditor's reports highlighted six categories of key audit matters most disclosed by auditors: employee benefits, revenues, provisions, inventories, impairments in receivables and tangible assets.

Research limitations: The study is limited by the availability of accountability documents. Additionally, the results are also limited since this research focuses only on the specific context of the public health sector.

Originality: This investigation contributes to the field of auditing and to knowledge within the thematic of the categories of key audit matters, differences between the categories of key audit matters disclosed in the Portuguese context and in other geographic contexts.

Keywords: *International Standard on Auditing 701; Key Audit Matters; Auditor's Reports; Public Business Entities; Public Health Sector.*

Acknowledgements: *This study was conducted at the Research Center on Accounting and Taxation (CICF) and was funded by the Portuguese Foundation for Science and Technology (FCT) through national funds (UIDB/04043/2020 and UIDP/04043/2020).*

1. Introduction

The business failures in the early 21st century and the aftermath of the recent global financial crisis initiated a regulatory reform process in auditing. Auditors must prioritize audit and report quality, as public confidence is paramount. Stakeholder demands for more informative reports were a driving force behind reviewing and reforming audit standards (Cordos & Fülöp, 2015; Ferreira & Morais, 2020; Li, 2017; Masdor & Shamsuddin, 2018; Pinto & Morais, 2019; Sierra-García et al., 2019).

One of the most notable improvements in enhancing the value of the auditor's report is the incorporation of Key Audit Matters (KAM). This change stems from collaborative efforts by the International Auditing and Assurance Standards Board (IAASB), the European Commission (EC), the Public Company Accounting Oversight Board (PCAOB), and the Financial Reporting Council (FRC) (Gold & Heilmann, 2019; Mock et al., 2013).

Given the significant and novel nature of the KAM theme, this study conducts an exploratory analysis of KAM disclosure, identifying the most commonly disclosed categories in auditors' reports. The public health sector in Portugal, with the largest turnover (54%) of the state business sector, and health entities, particularly public business entities, are deemed public interest entities by Portuguese state decree. They are mandated to report KAM, regardless of their listing status (Law No. 148/2015; Law No. 35/2018; EU Regulation No. 537/2014; Report No. 02/2023 of the Public Finance Council). The exploratory analysis focuses on identifying the most disclosed KAM categories in the public health sector from 2017 to 2021.

This article contributes to understanding the dissemination of KAM in public health sector in Portugal. Its findings shed light on auditing practices, elucidating realities and risks. Stakeholders benefit from more profound insights, enriching the scarce literature on Portuguese KAM.

The article's structure comprises this introduction, literature review covering KAM emergence and empirical studies, methodology, results detailing KAM disclosure analysis, and conclusions with study limitations and suggestions for future research.

2. Literature Review

2.1 The emergence of KAM: review of International Standard on Auditing (ISA) 700 and the new ISA 701

International bodies such as the IAASB, the EC, the PCAOB, and the FRC have devised initiatives to improve auditors' reports after the early 21st century business failures and the effects of the recent global financial crisis. Of these initiatives, we can highlight the new ISA 701 - Communicating Key Audit Matters in the Independent Auditor's Report (Brouwer et al., 2016; Cordos & Fülöp, 2015; Ferreira & Morais, 2020; Lin & Yen, 2022; Marques et al., 2019; Masdor & Shamsuddin, 2018; Sierra-García et al., 2019).

ISA 701 introduces the concept of KAM: "matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period" (ISA 701, 2015, p. 3).

As part of the audit reform, IAASB released in 2015 a review of ISA 700 - Forming an Opinion and Reporting on Financial Statements, which introduces significant changes in the structure and content of the auditor's report, a new and improved communication style was created between companies and stakeholders. ISA 701 is, in this sense, a breakthrough, as it introduces a new concept in the auditor's report, expanding the role of the auditor by requiring him to disclose the most significant risks the client faces, according to his professional judgment (Gold et al., 2012; Lin & Yen, 2022; Pinto & Morais, 2019; Sierra-García et al., 2019).

The ISA 701 offers a simple but precise definition of the KAM concept. In the definition, it is clearly established that the KAM communication requires the auditor to apply his professional judgment and consider the nature and extent of communication with the governance. The KAM are selected from the matters

communicated to the governance, and the determination of the KAM involves a judgment on the relative importance of the matters that require special attention from the auditor (Bédard et al., 2014; Cordos & Fülöp, 2015; Sierra-García et al., 2019).

The auditor's areas of particular attention often refer to complex areas of the financial statements and significant judgments of the governance, thus involving difficult or complex judgments by the auditor (Bédard et al., 2014; Camargo et al., 2019; Cordos & Fülöp, 2015; Li, 2017; Masdor & Shamsuddin, 2018; Tampubolon & Tobing, 2019).

2.2 Empirical Studies on Key Audit Matters

Since its implementation, KAM has been the subject of several empirical studies, as follows.

According to Cordos and Fülöp (2015), the number of matters to be included in the auditor's report differs from case to case, as the KAM depend on the size and complexity of the entity analyzed the nature and conditions of its business, and the facts and circumstances of the audit. However, although there is no fixed KAM number, the IAASB considers that the number of KAM to be included in the auditor's report is normally between 2 and 7.

In their study focused on the implementation of ISA 701 and, consequently, KAM, Masdor and Shamsuddin (2018) aggregate empirical data from multiple studies regarding the adoption of KAM in several countries. Its main contribution is to define the ranking of the four KAM categories most widely reported in auditor's reports in several countries (United Kingdom, New Zealand, Australia, Hong Kong, Switzerland and Singapore).

In the Thai context, Kitiwong and Sarapaivanich (2020) identified and used eleven categories of KAM in their study. The four most reported categories were revenue recognition (25%), impairment (18%), inventory valuation (16%), and investment valuation (10%). The categories of provisions and litigation and regulation are the least disclosed (with an expression of 2% each).

In the Chinese context, Zeng et al. (2021) list twenty categories of KAM that are often identified by auditors. The four most reported categories (a total of 7153 KAM) are revenue recognition, the deduction of receivables, impairment of goodwill, and depreciation of inventories.

In the context of the United Kingdom, the study by Sierra-García et al. (2019) contributes to research in the area by distinguishing two types of KAM: a) KAM risk at the entity level, that is, KAM related to customer risk as a whole; and b) KAM risk at account level, that is, KAM related to specific items in the financial statements. In their study, the four most common categories of KAM (out of the 1265 KAM analysed) identified by the auditors are related to revenues, followed by intangibles, taxes, and litigious/regulatory provisions.

In the Brazilian context, Marques and Souza (2017) classify the KAM disclosed into twenty categories, later regrouped into fifteen categories due to the similarity of their contents. Of these fifteen categories, we highlight four relevant to the study: the recoverability of assets, contingencies, revenue recognition, and the projection of future results for the realization of assets. Camargo et al. (2019), in turn, segregate the KAM disclosed into twenty-six categories, of which we highlight four categories due to their expressiveness: impairment of assets, contingent liabilities, revenues, and taxes.

Pinto and Morais (2019) add to the research area by associating KAM with accounting standards and identify seventeen IAS/International Financial Reporting Standards (IFRS), of which we highlight four categories due to their expressiveness: IAS 36 - asset impairment, IAS 18 - revenue, IAS 37 - provisions, contingent liabilities and contingent assets, and IAS 12 - income taxes.

Finally, Brito et al. (2022) identified twenty categories in their study applied to the Portuguese context, using the model defined by the FRC (2015) to investigate listed companies in Euronext Lisbon. From these KAM categories, we highlight four relevant categories (in terms of the average number of KAM disclosed) in the Portuguese context of listed companies: provisions, contingent liabilities and contingent assets, revenue, asset impairments, and the acquisition/merger and disposal of companies.

3. Methodology

This study performs an exploratory analysis of KAM communication, identifying the categories of KAM most disclosed by auditors in auditors' reports from 2017-2021. The research is relevant because of the relevance and novelty of the KAM theme in auditing. At the same time, the target population used results from the expressiveness and relevance of the public health sector in Portugal.

For the period under review for this investigation, the selection of the range from 2017 to 2021 relates to the following set of circumstances:

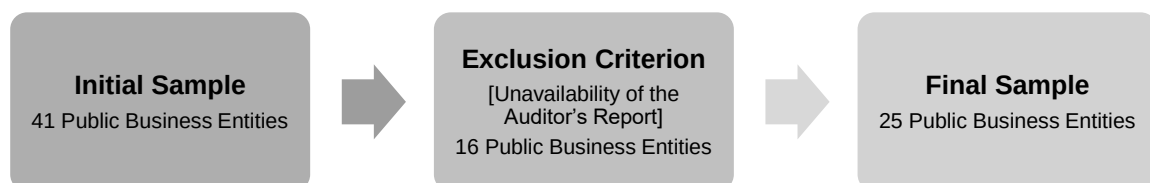
- a) ISA 701 is applicable to periods ending after 15 December 2016;
- b) In Portugal, public business entities were considered public interest entities between 2016 and 2022 and, therefore required to report KAM, and

- c) The Accounting Standardization System for Public Administrations (SNC-AP) became mandatory for preparing financial statements for 2017.

We have identified a set of 41 public business entities distributed among 21 hospital centers, 9 hospitals, 3 cancer institutes and 8 local health units. Following the identification of health entities and, specifically, public business entities, we proceed to the manual collection of the accountability documents of these health entities on their websites.

Figure 1 depicts data collection, primarily focusing on auditor's and annual reports. Sixteen public business entities lacked accessible reports from 2017 to 2021, prompting their exclusion from the initial sample. Consequently, the study's final sample comprises 25 remaining public business entities.

Figure 1: Sample Definition



Source: Own Elaboration

The study examines 25 public business entities over 5 years (2017-2021), aiming to analyze 125 auditor's reports. However, some entities needed more reports on

their websites for specific years. Despite this, the final sample comprises 25 entities, as imposing availability requirements would drastically reduce the sample to only 6. Consequently, the study reviews 90 auditor's reports instead of the expected 125. Table 1 provides detailed information on the availability of auditor's reports during the analysis period.

Table 1: Data Collection

	2017		2018		2019		2020		2021	
	N	%	N	%	N	%	N	%	N	%
w/ Auditor's Report	13	52%	16	64%	19	76%	22	88%	20	80%
w/o Auditor's Report	12	48%	9	36%	6	24%	3	12%	5	20%
Total	25	100%	25	100%	25	100%	25	100%	25	100%

Source: Own Elaboration

In the following section, we carry out the exploratory analysis of the KAM in the available auditor's report, identifying the categories of KAM most disclosed by the auditors.

4. Analysis and discussion of results

The decision-making process for KAM determination aims to select fewer matters from those reported to governance based on the auditor's professional judgment. Hence, it is unusual for an auditor not to identify at least one KAM among matters discussed with governance (Masdor & Shamsuddin, 2018; Tampubolon & Tobing, 2019). However, in this study's sample, instances occurred in 2018 and 2021 where auditors didn't identify KAM in their reports. According to ISA 701,

auditors must include a statement in a separate report section if there are no KAM or if they only relate to modified opinions. Typically, this statement acknowledges the absence of KAM.

Additionally, if a subject remains a KAM across periods, though updates aren't mandatory, auditors should consider it (Masdor & Shamsuddin, 2018; Tampubolon & Tobing, 2019). The investigation confirmed the presence of the same KAM in consecutive periods, indicating persistent issues spanning multiple economic years, such as program contracts and ongoing legal proceedings.

As depicted in Table 2, our analysis of auditor's reports reveals six categories of KAM disclosed within the public health sector in Portugal: employee benefits, revenues, provisions, inventories, impairments in receivables, and tangible assets.

Table 1: Number of Key Audit Matters by category

	Num EPE		Num KAM					
	N	% ¹	2017	2018	2019	2020	2021	Total
Employee Benefits	14	56%	4	8	9	10	9	40
Revenues	12	48%	5	5	6	6	4	26
Provisions	9	36%	1	6	6	7	6	26
Inventories	8	32%	2	3	5	3	7	20
Impairments in Receivables	3	12%	1	1	1	2	0	5
Tangible Assets	3	12%	1	0	1	1	2	5
Sum			24	23	28	29	28	122
Average ²			2.33	3.83	4.67	4.83	4.67	
Min			1	0	1	1	0	
Max			5	8	9	10	9	

¹ Percentage of EPE reporting this KAM in the total sample of 25 EPE.

² Average number of KAM reported per KAM category.

Source: Own Elaboration

We identified a total of 122 KAM mentioned, with the average number of KAM released showing a peak in 2020 and a growth trend when comparing the first two years with the last three years of disclosure analyzed. The KAM number ranges from 0 or 1 KAM to 9 or 10 KAM, which was highlighted in 2017 as the first year this interval was most reduced, with a maximum number of KAM released from 5 KAM.

The three most commonly disclosed categories of KAM by auditors were employee benefits, reported by 56% of the public business entities analyzed, with 40 instances from 2017-2021. Following this is the category of revenues, mentioned by 48% of public business entities, appearing in 26 different auditor's reports. Finally, provisions were indicated by 36% of the reviewed entities and mentioned in 26 different auditor's reports, similar to revenues.

The content analysis of the auditor's reports of the health entities also reveals the identification of inventories as KAM, referenced by 32% of the public business entities analyzed, appearing in 20 instances from 2017 to 2021. Additionally, impairments in receivables and tangible assets were mentioned as KAM by three entities, constituting 12% of the sample, with each matter appearing in five circumstances.

All categories of KAM identified in this study receive varying degrees of attention across the analyzed studies, albeit not always with the same prominence observed in our research.

Employee benefits feature in five out of eight studies, ranking as the 6th most discussed category in the investigations of Brito et al. (2022) and Pinto and Morais (2019), and the 10th most mentioned according to Camargo et al. (2019)

and Marques and Souza (2017). Sierra-García et al. (2019) indirectly include this category as the 8th most mentioned concerning pension schemes.

Revenues are mentioned in all studies, ranging from the most communicated category in studies by Sierra-García et al. (2019) and Zeng et al. (2021) to the 9th most disclosed in Kitiwong and Sarapaivanich (2020), and are the 2nd most mentioned in Portugal, as per Brito et al. (2022).

Provisions are identified in all examined investigations, ranging from the most mentioned category in Portugal by Brito et al. (2022) to the 18th most reported in the Chinese context by Zeng et al. (2021), with connections to items like lawsuits and contingencies in other studies.

Inventories are disclosed in almost all studies except Marques and Souza (2017), ranking from the 2nd to the 21st most mentioned category. According to Brito et al. (2022), they are the 8th most reported in Portugal.

Impairments in receivables are mentioned in fewer studies, with lower rankings compared to other KAM categories.

Tangible assets are referred to in several investigations, ranking from the most mentioned in Thailand and Britain (Kitiwong & Sarapaivanich, 2020; Masdor & Shamsuddin, 2018) to the 24th most reported in Brazil (Camargo et al., 2019). Portugal ranks them as the 4th most publicized category according to Brito et al. (2022), associating them with the broader category of assets.

5. Conclusion

Implementation of ISA 701 triggers scrutiny of Key Audit Matters (KAM). This study identifies the most common KAM categories: employee benefits, revenues, provisions, inventories, impairments in receivables, and tangible assets. It allows

for comparing KAM across samples and geographical contexts. The highlighted KAM categories vary from other studies, indicating the influence of geographical context, analyzed period, and entity type.

Given the significance of public business entities and the public health sector in Portugal, this study's exploratory analysis of KAM communication from 2017 to 2021 contributes to auditing literature. It sheds light on the most at-risk areas, aiding stakeholders in gaining insights into the Portuguese reality and the public health sector. Additionally, it enriches the limited literature on KAM in Portugal, enabling comparative analyses with other geographic contexts.

However, the study faces limitations, particularly concerning the availability of accounting documents for unlisted companies, which are often inaccessible online or to the general public. Future research could address this limitation by exploring a broader range of sectors within the public sector or comparing KAM communication between public and private health sectors. Connecting KAM with relevant accounting standards and investigating the persistence of certain KAM over time could also be fruitful avenues for future studies.

References

- Bédard, J., Gonthier-Besacier, N., & Schatt, A. (2014). Costs and benefits of reporting key audit matters in the audit report: the French experience. *International Symposium on Audit Research*.
- Brito, R. G., Guerreiro, M. S., & Serra, S. (2022). Matérias relevantes de auditoria - análise exploratória do contexto português. XX Encontro Internacional AECA.
- Brouwer, A., Eimers, P., & Langendijk, H. (2016) The relationship between key audit matters in the new auditor's report and the risks reported in the management report and the estimates and judgments in the notes to the financial statements. *Journal of Accountancy and Business Economics*, 85(1), 580-613.
- Camargo, N. S., Rodrigues, F. F., Machado, C. A., & Guerra, M. (2019). Principais assuntos de auditoria e os resultados das empresas listadas na IBRX 100. *Revista Contemporânea de Contabilidade*, 16(41), 162-180.

- Cordos, G. S., & Fülöp, M. T. (2015). Understanding audit reporting changes: introduction of Key Audit Matters. *Accounting and Management Information Systems*, 14(1), 128-152.
- Ferreira, C., & Morais, A. I. (2020). Análise da relação entre características das empresas e os key audit matters divulgados. *Revista Contabilidade e Finanças*, 31(83), 262-274.
- Financial Reporting Council (FRC) (2015). Extended auditor's reports - A review of experience in the first year.
- Gold, A., Gronewold, U., & Pott, C. (2012). The ISA 700 auditor's report and the audit expectation gap - do explanations matter? *International Journal of Auditing*, 16(3), 286-307.
- Gold, A., & Heilmann, M. (2019). The consequences of disclosing key audit matters (KAMs): A review of the academic literature. *Maandblad voor Accountancy en Bedrijfseconomie*, 93(1/2), 5-14.
- International Standards on Auditing (ISA) 701 (2015). ISA 701 - Comunicar matérias relevantes de auditoria no relatório do auditor independente.
- Kitiwong, W., & Sarapaivanich, N. (2020). Consequences of the implementation of expanded audit reports with key audit matters (KAMs) on audit quality. *Managerial Auditing Journal*, 35(8), 1095-1119.
- Law No. 148/2015, of September 9th (Legal Regime of Audit Supervision).
- Law No. 35/2018, of July 20th.
- Li, H. (2017). The benefit of adding key audit matters to the auditing report. *Advances in Economics, Business and Management Research*, 49.
- Lin, H. L., & Yen, A. R. (2022). Auditor rotation, key audit matter disclosures, and financial reporting quality. *Advances in Accounting*, 57.
- Marques, D. S., Portugal, G. T., & Almeida, S. R. V. (2019). The impact generated by the key audit matters on the application of audit procedures. *European Journal of Scientific Research*, 152(2), 144-152.
- Marques, V. A., & Souza, M. K. P. (2017). Principais assuntos de auditoria e opinião sobre o risco de descontinuidade: uma análise das empresas do Ibovespa. *Revista de Informação Contábil*, 11(4), 1-22.
- Masdor, N., & Shamsuddin, A. (2018). The Implementation of ISA 701- Key audit matters: a review. *Global Business and Management Research: An International Journal*, 10(3), 1107-1115.
- Mock, T. J., Bédard, J., Coram, P. J., Davis, S. M., Espahbodi, R., & Warne, R. C. (2013). The audit reporting model: current research synthesis and implications. *Auditing: A Journal of Practice & Theory*, 32(1), 323-351.
- Pinto, I., & Morais, A. I. (2019). What matters in disclosures of key audit matters: Evidence from Europe. *Journal of International Financial Management and Accounting*, 30(2), 145-162.
- EU Regulation No. 537/2014 of the European Parliament and of the Council.
- Sierra-García, L., Gambetta, N., García-Benau, M. A., & Orta-Pérez, M. (2019). Understanding the determinants of the magnitude of entity-level risk and account-

- level risk key audit matters: The case of the United Kingdom. *The British Accounting Review*, 51(3), 227-240.
- Tampubolon, N., & Tobing, R. P. (2019). Key audit matters implementation on public sector audit report: case study of the audit board of Indonesia. *Advances in Social Science, Education and Humanities Research*, 558.
- Zeng, Y., Zhang, J. H., Zhang, J., & Zhang, M. (2021). Key audit matters reports in China: their descriptions and implications of audit quality. *Accounting Horizons*, 35(2), 162-192.

Green intellectual capital and organizational sustainability: a bibliometric study

Lurdes Silva, CICEF - School of Management, IPCA, Barcelos, Portugal, lsilva@ipca.pt

Vânia Costa, Polytechnic Institute of Cávado and Ave, CiTUR, GOVCOPP and UNIAG, Portugal. vcosta@ipca.pt

Paula Loureiro, Polytechnic Institute of Cávado and Ave, Portugal. ploureiro@ipca.pt

Abstract

Purpose: This article aims to make a bibliometric analysis of the studies published on green intellectual capital and to understand to what extent it can contribute to strengthening of sustainability and competitive advantage of organizations.

Methodology: The systematic reviewing procedures followed PRISMA protocol, which in the time limits between 2008 and April 2022. The research identified the main challenge encountered by all researchers in the field. The study analyses publications from the last 14 years with the keywords "green intellectual capital" in titles, keywords, and abstracts in WoS. A total of 45 articles were obtained and 11 were excluded, resulting in a total of 34 articles analyzed.

Results: Research studies confirm the positive impact of the incorporation of green intellectual capital in organizational policies and practices. In addition to helping minimize the negative environmental impacts of their activities, they project an environmentally responsible image and provide a boost to their competitive advantage.

Research limitations: The main limitation of this study is the small number of studies, as it focused on those published in the WoS, having as perspective the inclusion of other studies published in other access platforms

Originality: The results of the study have implications for greater awareness of the importance of environmental concerns in companies, through innovation in greener products, processes, and procedures.

Keywords: *green intellectual capital; green innovation; sustainability; green competitive advantage.*

1. Introduction

The concept of intellectual capital emerges in this new economy and refers to the resources or capital that determine the value and competitiveness of an organization Lee et al. (2020) Sustainable intellectual capital is the sum of all the knowledge created about environmental management, inside and outside the organization, which should be leveraged to obtain competitive advantages López-Gamero et al. (2011).

Companies are increasingly awakening to greater environmental awareness, along with the attention given to the economic and social aspects. Based on a literature review and content analysis methodology, this study aims to carry out a bibliometric analysis on the topic of green intellectual capital. Of the 45 articles published in the WoS between 2008 and April 2022, 11 were excluded, which resulted in an analysis of 34 articles.

We begin this work with a brief theoretical framework about green intellectual capital. This is followed by the presentation of the methodology, the systematic review, the discussion, and the conclusions.

2. Literature Review

Intellectual capital can be seen as a complex process that incorporates knowledge management. Sveiby (1997; 2000) is said to have pioneered the classification of intangibles into three components: individual competence assets, internal structure assets, and external structure assets.

Green intellectual capital includes the three components of intellectual capital, as defined by Sveiby (1997; 2000) adding the concerns with good practices of environmental preservation, i.e., with the adoption of practices that help the organization to obtain competitive advantages based on strategies aligned with the environment Malik et al. (2020). López-Gamero et al. (2011, p.19), based on the concept of sustainable intellectual capital presented by Youndt et al. (2004), defined green intellectual capital as "the sum of all knowledge that an organization can leverage in the process of conducting environmental management to gain a competitive advantage". The authors add that sustainable intellectual capital is the sum of all knowledge created about environmental management, inside and outside the organization, which should be leveraged for competitive advantage. Yusliza et al. (2020) define green intellectual capital as the integration into the intellectual capital of environmental concerns in all organizational spheres.

There was a time when organizations had no concerns about the effects of their actions on the planet, considering it to be unlimited. This attitude led to the depletion of natural resources and the increase in pollution that threatened the survival of living beings (Malik et al., 2020). In the 21st century, with the increase in environmental problems, the issue of environmental protection begins to play a critical role in the management of companies (Liao et al., 2021), leading businesses to seek ways through which they can improve their environmental footprints, i.e., adhere to the protection of nature and adopt environmental responsibilities, increasing the focus on social and environmental performance in parallel with the economic performance of a company (Bombiak & Marciniuk-Kluska, 2018; Malik et al., 2020; Shah et al., 2021; Yong, 2019; Yusliza et al., 2020). These environmental problems and the scarcity of natural resources have

given rise to a green movement, which has been a trend in industries in recent decades (Dang & Wang, 2022).

Companies should seek to promote simultaneously lasting economic performance and an improvement of the current well-being and that of future generations (Januškaitė & Užienė, 2018). Environmental awareness in organizations involves advocating a global green economy, which considers the value of nature, providing the best use of resources for biodiversity and ecosystems, without compromising their sustainability (Gradinaru, 2012).

3. Methodology

This study uses a literature review and content analysis as the research methodology. The research data used and the bibliometric analyses in this study were downloaded from the WoS database. There were four distinct phases to the systematic review process, namely:

WoS search with the keywords "green intellectual capital" in the titles, abstracts and keywords of the articles published between 2008 and 2022.

Of the 45 articles selected in the previous step, 34 were analysed and 11 excluded due to the difficulty in accessing full articles published in journals, written in English and open access.

The abstracts of the 34 articles were read to confirm that they were consistent with the objectives of this study, and none of the articles were excluded.

This study applied the bibliometric method, using mechanisms to analyze indicators that allow us to understand the phenomenon under study.

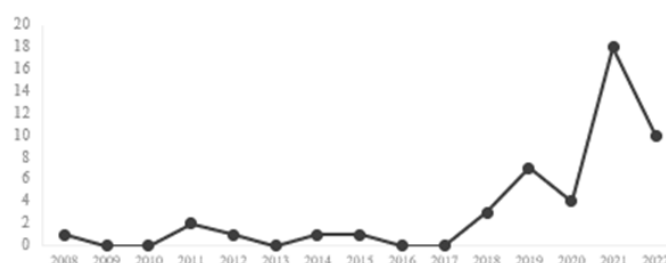
Bibliometric indicators are quantitative measures used to evaluate scientific research output. These indicators can be used to measure the impact of research, the productivity of researchers and institutions, and the quality of scientific journals. The advantages of bibliometric indicators include the ability to measure the impact of research output, identify trends and patterns in research, and evaluate the productivity and quality of researchers and institutions.

In addition, this research used the VOSviewer software, a software tool for building and visualizing bibliometric networks. Using this tool, a graphic visualization of bibliographic material was developed to map journals and keywords, with bibliographic coupling and co-citation analysis (Martínez-López et al, 2018).

4. Results

Given the characterization of our sample of studies, the study of green intellectual capital has been increasing since 2020, observing an increasing trend in the number of publications in this area. The first article related to the topic under study appeared in WoS in 2008. We highlight the low value of papers until 2018 and the sharp growth of studies from 2019 onwards (Figure 1).

Figure 1: Number of publications by year



Source: Own Elaboration

The study has essentially interested researchers in the areas of management, business, environmental science and studies, and green sustainable science technology social sciences. The TOP 5 is in the table 1.

Table 1: Number of publications by journals

Journal	Nº	Quotes
Journal of Intellectual Capital	6	17.64%
Journal of Cleaner Production	4	11.76%
Business Strategy and the Environment	3	8.82%
Sustainability	3	8.82%
Management Decision	2	0,06%
Environmental Science and Pollution Research	2	0.06%

Source: Own Elaboration

Using the VOS viewer, the most common keywords in the articles analysed in this study were identified. This keyword analysis translates the main ideas of a study. To do this, we searched for the keywords with more occurrence (Figure 2).

The two most prominent clusters are identified by the colours green and red, with the words "green intellectual capital" and "performance" having the highest number of occurrences. The lines between the articles indicate the links between the keywords and the closer the keywords are to each other, the stronger their relationship.

A total of 72 keywords directly related to “green intellectual capital” were identified.

The top 5 keywords (in higher numbers) were green intellectual capital (37 occurrences and 265 total link strength); performance (21 occurrences and 151 total link strength); sustainability (16 occurrences and 134 total link strength);

impact (14 occurrences and 125 total link strength); and competitive advantage (14 occurrences and 103 link strength).

To identify the most frequent papers in the field of green intellectual capital we analysed the top 5 papers with the most citations. Table 2 illustrates the highly cited papers and their characteristics.

Table 2: TOP 5 articles with the most citations

R	Journal	Article	Authors	Year	TC	JIF™
1	JOURNAL OF BUSINESS ETHICS	The positive effect of green intellectual capital on the competitive advantages of firms	Chen, YS [7]	2008	259	6.43
2	JOURNAL OF CLEANER PRODUCTION	Nexus between green intellectual capital and green human resource management	Yong, JY; Yusliza, MY; Ramayah, T; Fawehinmi, O. [34]	2019	95	9.297
3	MANAGEMENT DECISION	The determinants of green intellectual capital	Chang, CH, and Chen, YS. [6]	2012	74	4.957
4	MANAGEMENT DECISION	Environmental consciousness and intellectual capital management Evidence from Taiwan's manufacturing industry	Huang, CL, and Kung, FH. [13]	2011	65	4.957

R	Journal	Article	Authors	Year	TC	JIF™
5	JOURNAL OF CLEANER PRODUCTION	Do all elements of green intellectual capital contribute toward business sustainability? Evidence from the Malaysian context using the Partial Least Squares method	Yusoff, YM; Omar, MK; Zaman, MDK; Samad, S. [36]	2019	73	10.967

5. Discussion

Green intellectual capital is an effective business investment as it is what promotes internal resource improvements to address environmental issues (Asiaei et al., 2022a). Much has been written about green intellectual capital as a contribution to achieving competitive advantage and green innovation in an era when, increasingly, there is awareness that only green practices can mitigate environmental degradation and achieve competitive advantage.

This study sought to conduct a systematic review on green intellectual capital from WoS between 2008 and April 2022, obtaining a total of 45 articles. Thirty-four of these articles were analysed.

This review confirmed green intellectual capital as an important theme in companies that are concerned with environmental sustainability. The studies confirmed that the green practices adopted by companies contribute not only to a better planet, but also to a human resources management more focused on ecological aspects, to green innovation in products and processes, to a more

environmentally friendly image, creating greater confidence in the stakeholders and, essentially, to a better environmental, social, economic, and financial performance and consequent obtaining of sustained competitive advantages.

The studies analyzed focus on the theme of green intellectual capital in several aspects: green innovation (Ali et al., 2021a), social innovation (Sheikh, 2021), innovation in business practices and processes (Jirakraisiri et al., 2021; Maaz et al., 2021; Pan et al., 2021]. The association between green intellectual capital and corporate sustainability was the focus of the studies by Ullah et al. (2021), Ullah et al (2022a) and by Yusoff et al. (2019).

The research by Asiaei et al. (2022a); Asiaei et al. (2022b); Delgado-Verde et al. (2014); Nikolaou (2019); Shah et al. (2021); Wang and Juo (2021); Yusliza et al. (2020), explored the role of green intellectual capital in improved firm performance (whether environmental, economic, or financial performance).

The relationship of green intellectual capital to organizations' competitive advantages has been examined by virtually all research, however, we point out the most relevant as that of Chen (2008); Dang and Wang (2022).

Many studies have embraced green human resource management (Ali et al., 2021b; Ghosh & Haque, 2022; Haldorai et al., 2022; Jirawuttinunt, 2018; Liao et al., 2021; Malik et al., 2020; Pan et al., 2021; Rehman et al, 2021; Ullah et al., 2022b; Yong et al., 2020; Yong et al., 2019). Chang and Chen (2012) addressed the issue of green intellectual capital in the context of environmental ethics and awareness.

6. Conclusion

The studies reveal the positive effects of green practices on organizations. They also reveal that green intellectual capital practices contribute significantly to the promotion of sustainability in organizations and to the achievement of competitive advantages through green innovation.

Through an analysis of the state of the art on green intellectual capital, we seek to contribute to a greater perception of what has been studied within the scope of the impact of green practices in current organizations and thus, contribute to the continuation of the study of this theme and a greater awareness of organizations for environmental problems, whose contribution helps to minimize the negative impacts of their practices on the environment.

Thus, this study's practical implications are to alert companies to the need to improve their environmental awareness, through the green management of human resources and the adoption of corporate sustainability practices and eco-friendly behaviours.

The main limitation of this study is the small number of studies, as it focused on those published in the WoS, having as a perspective the inclusion of other studies published in other access platforms.

References

- Ali, W., Jun, W., Hussain, H., Khan, N. A., Younas, M. W., & Jamil, I. (2021a). Does green intellectual capital matter for green innovation adoption? Evidence from the manufacturing SMEs of Pakistan. *Journal of Intellectual Capital*, 22(5), 868-888.
- Ali, M., Puah, C. H., Ali, A., Raza, S. A., & Ayob, N. (2021b). Green intellectual capital, green HRM and green social identity toward sustainable environment: a new

- integrated framework for Islamic banks. *International Journal of Manpower*, 43(3), 614-638.
- Asiaei, K., Bontis, N., Alizadeh, R., & Yaghoubi, M. (2022a). Green intellectual capital and environmental management accounting: Natural resource orchestration in favor of environmental performance. *Business Strategy and the Environment*, 31(1), 76-93.
- Asiaei, K., Jusoh, R., Barani, O., & Asiaei, A. (2022b). How does green intellectual capital boost performance? The mediating role of environmental performance measurement systems. *Business Strategy and the Environment*, 31(4), 1587-1606.
- Bombiak, E., & Marciniuk-Kluska, A. (2018). Green human resource management as a tool for the sustainable development of enterprises: Polish young company experience. *Sustainability*, 10(6).
- Chang, C. H., & Chen, Y. S. (2012). The determinants of green intellectual capital. *Management decision*, 50(1), 74-94.
- Chen, Y. S. (2008). The positive effect of green intellectual capital on competitive advantages of firms. *Journal of business ethics*, 77(3), 271-286.
- Dang, V.T., & Wang, J. (2022). Building competitive advantage for hospitality companies: The roles of green innovation strategic orientation and green intellectual capital. *International Journal of Hospitality Management*, 102, 103161.
- Delgado-Verde, M., Amores-Salvadó, J., Martín-de Castro, G., & Navas-López, J. E. (2014). Green intellectual capital and environmental product innovation: the mediating role of green social capital. *Knowledge Management Research & Practice*, 12(3), 261-275.
- Ghosh, A., & Haque, S. (2022). Can the components of green intellectual capital influence employee green behavior? An empirical analysis on Indian energy sector using the partial least squares method. *Journal of Intellectual Capital*, 1469-1930.
- Gradinaru, G. (2012). Progressing to a Global Green Economy. In: Proceedings of the 4th European Conference on on Intellectual Capital, 230.
- Haldorai, K., Kim, W. G., & Garcia, R. F. (2022). Top management green commitment and green intellectual capital as enablers of hotel environmental performance: The mediating role of green human resource management. *Tourism Management*, 88.
- Huang, C. L., & Kung, F. H. (2011). Environmental consciousness and intellectual capital management: Evidence from Taiwan's manufacturing industry. *Management decision*, 49(9), 1405-1425.
- Januškaitė, V., & Užienė, L. (2018). Intellectual capital as a factor of sustainable regional competitiveness. *Sustainability*, 10(12).
- Jirakraisiri, J., Badir, Y. F., & Frank, B. (2021). Translating green strategic intent into green process innovation performance: the role of green intellectual capital. *Journal of Intellectual Capital*, 22(7), 43-67.

- Jirawuttinunt, S. (2018). The Relationship between Green Human Resource Management and Green Intellectual Capital of Certified ISO 14000 Businesses in Thailand. *St. Theresa Journal of Humanities and Social Sciences*, 4(1), 20-37.
- Lee, H. Y., Liu, C. F., Yain, Y. S., & Lin, C. H. (2020). Intellectual capital for green accounting in agribusiness. *International Food and Agribusiness Management Review*, 23(5), 759-765.
- Liao, H. Y., Hsu, C. T., & Chiang, H. C. (2021). How does green intellectual capital influence employee pro-environmental behavior? The mediating role of corporate social responsibility. *International Journal of Management Studies*, 28(2), 27-47.
- López-Gamero, M. D., Zaragoza-Sáez, P., Claver-Cortés, E., & Molina-Azorín, J. F. (2011). Sustainable development and intangibles: building sustainable intellectual capital. *Business Strategy and the Environment*, 20(1), 18-37.
- Maaz, M. A. M., Ahmad, R., & Abad, A. (2021). Antecedents and consequences of green supply chain management practices: a study of Indian food processing industry. *Benchmarking: An International Journal*, 1463-5771. <https://doi.org/10.1108/BIJ-01-2021-0026>
- Malik, S. Y., Cao, Y., Mughal, Y. H., Kundi, G. M., Mughal, M. H., & Ramayah, T. (2020). Pathways towards sustainability in organizations: Empirical evidence on the role of green human resource management practices and green intellectual capital. *Sustainability*, 12(8).
- Martínez-López, F. J., Merigó, J. M., Valenzuela-Fernández, L., & Nicolás, C. (2018). Fifty years of the European Journal of Marketing: a bibliometric analysis. *European Journal of Marketing*, 52(1/2), 439-468.
- Nikolaou, I. E. (2019). A framework to explicate the relationship between CSER and financial performance: An intellectual capital-based approach and knowledge-based view of firm. *Journal of the Knowledge Economy*, 10(4), 1427-1446.
- Pan, C., Jiang, Y., Wang, M., Xu, S., Xu, M., & Dong, Y. (2021). How Can Agricultural Corporate Build Sustainable Competitive Advantage through Green Intellectual Capital? A New Environmental Management Approach to Green Agriculture. *International Journal of Environmental Research and Public Health*, 18(15).
- Rehman, S. U., Kraus, S., Shah, S. A., Khanin, D., & Mahto, R. V. (2021). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. *Technological Forecasting and Social Change*, 163.
- Shah, S. M. M., Ahmed, U., Ismail, A. I., & Mozammel, S. (2021). Going intellectually green: Exploring the nexus between green intellectual capital, environmental responsibility, and environmental concern towards environmental performance. *Sustainability*, 13(11).
- Sheikh, A. M. (2021). Green intellectual capital and social innovation: the nexus. *Journal of Intellectual Capital*, 1469-1930.
- Sveiby, K. (1997). The new organizational wealth: Managing and measuring knowledge-based assets. Berrett-Koehler, Brisbane.
- Sveiby, K. (2000). Capital Intelectual. La nueva riqueza de las empresas. Barcelona: Edições Gestão 2000. Barcelona.

- Ullah, H., Wang, Z., Bashir, S., Khan, A. R., Riaz, M., & Syed, N. (2021). Nexus between IT capability and green intellectual capital on sustainable businesses: Evidence from emerging economies. *Environmental Science and Pollution Research*, 28(22), 27825-27843.
- Ullah, H., Wang, Z., Mohsin, M., Jiang, W., & Abbas, H. (2022a). Multidimensional perspective of green financial innovation between green intellectual capital on sustainable business: the case of Pakistan. *Environmental Science and Pollution Research*, 29(4), 5552-5568.
- Ullah, S., Mehmood, T., & Ahmad, T. (2022b). Green intellectual capital and green HRM enabling organizations go green: mediating role of green innovation. *International Journal of Innovation Science*, 1757-2223.
- Wang, C. H., & Juo, W. J. (2021). An environmental policy of green intellectual capital: Green innovation strategy for performance sustainability. *Business Strategy and the Environment*, 30(7), 3241-3254.
- Yong, J. Y., Yusliza, M. Y., Jabbour, C. J. C., & Ahmad, N. H. (2020). Exploratory cases on the interplay between green human resource management and advanced green manufacturing in light of the Ability-Motivation-Opportunity theory. *Journal of Management Development*, 39(1), 31-49.
- Yong, J. Y., Yusliza, M. Y., Ramayah, T., & Fawehinmi, O. (2019). Nexus between green intellectual capital and green human resource management. *Journal of Cleaner Production*, 215, 364-374.
- Yusliza, M. Y., Yong, J. Y., Tanveer, M. I., Ramayah, T., Faezah, J. N., & Muhammad, Z. (2020). A structural model of the impact of green intellectual capital on sustainable performance. *Journal of Cleaner Production*, 249, 119334.
- Yusoff, Y. M., Omar, M. K., Zaman, M. D. K., & Samad, S. (2019). Do all elements of green intellectual capital contribute toward business sustainability? Evidence from the Malaysian context using the Partial Least Squares method. *Journal of Cleaner Production*, 234, 626-637.

An analysis of the accounting degree study plans designed on the skills of public accountants

Cardoso, Anabela. ISPGAYA, Portugal. *ispg2021103267@ispgaya.pt*

Gomes, Pedro. ISPGAYA, Portugal. *ispg2021102088@ispgaya.pt*

Melo, Ricardo. ISPGAYA, Portugal. *ispg2021102990@ispgaya.pt*

Pintassilgo, Ana. ISPGAYA, Portugal. *ispg2021102852@ispgaya.pt*

Silva, Filipa. ISPGAYA, Portugal. *fsilva@ispgaya.pt*

Abstract

Purpose: In the current context, with several professions undergoing changes, this study aims to analyse the suitability of the accounting degree study plan for the training of public accountants, based on the perception of course coordinators at HEIs.

Methodology: Information was collected through questionnaire survey sent to 20 HEIs that offer a degree in accounting. The questionnaire addressed three dimensions: an overview of the accounting degree, a specific analysis of the public accounting discipline and the assessment of the technical skills necessary for the public accounting profession. The data was analysed using descriptive statistics and the opinions of the course coordinators were considered.

Results: The study had 11 valid responses out of 20 possible, which represents 55% of the total population. It was possible to identify a consensus on the need to add more hours or disciplines related to public accounting, in addition to the recognition that the profession requires additional specialization in the area.

Research limitations: The main limitation of this study is the relatively small sample size, with responses from only 11 HEIs. This may limit the generalizability of the results. Furthermore, the study is based on the subjective perceptions of course coordinators, which may introduce biases. Future research could expand the sample size and include input from other interested parties, such as course teachers, students and employers, to provide a more comprehensive analysis.

Originality: This study contributes to the existing literature by providing a focused analysis of accounting degree programs from the perspective of course coordinators. It identifies specific areas where the curriculum can be improved to better prepare students for careers in public accounting. The findings offer practical recommendations for curriculum enhancement, addressing a critical gap in the alignment between academic training and professional requirements in the field of public accounting.

Keywords: *HEIs; Degree in Accounting; Syllabus; Public Accounting; Public Accountant.*

1. Introduction

Along with other entities, HEIs (Higher Education Institutions) are also responsible for preparing future professionals, as they are responsible for preparing and providing fundamental knowledge to future professionals. In this sense, the accounting degree study plan must be able to meet employers' expectations (Akbulaev, Mammadov, & Shahbazli, 2021), and the case of the public sector should be no exception. According to (Gomes et. al., 2023) there is a need to promote new teaching approaches and methodologies, particularly within the scope of public accounting.

This study seeks to analyse the data obtained from HEIs and aims to assess the adequacy of the accounting degree study plan to meet market expectations and whose focus is public accounting. The aim is to obtain relevant information from these, particularly regarding the importance of specific public accounting disciplines, verify the scientific areas of the study plan area and the preparation of future professionals to enter a career as a public accountant.

The contribution of this study includes identifying gaps and opportunities for improvement in the study plan and proposing complementary strategies that can

be implemented to improve the training of public accountants. This study is justified by the need to align academic training with market demands and expectations of future employers, with a view to ensuring the effective preparation of future public accounting professionals.

2. Literature Review

Public accounting has been the subject of research by researchers in recent decades, largely driven by the concept of “New Public Management” (Stteccollin, 2018). However, recently, new approaches are being discussed (Grossi et al., 2023) and the teaching of public accounting has also become a focus of research (Heilling, 2020).

In this scenario, some researchers have identified a mismatch between what is taught in accounting degrees (Steccolini, 2018) and what is expected in the practice of public accounting professionals (Adam et al., 2020).

Budding et al., (2022) argue that one of the objectives of teaching public accounting is to create competent public sector professionals, and, consequently, create quality financial information. Public accounting professionals are involved in the financial decisions of public entities and, for this reason, need to be familiar with current accounting standards, which are typically specific to the public sector (Heiling, 2020).

According to studies carried out by Heiling et al., (2023) and Neves et al., (2022) HEIs do not give the same importance to teaching accounting in the public sector as they do to teaching accounting in the private sector, a fact which limits the technical training of future professionals in the field. Reichard et al., (2023)

showed that the teaching of public accounting is almost irrelevant in German universities, compared to the teaching of private sector accounting.

For Heiling et al., (2023) IPSA - International Public Sector Accounting Standards have been playing a fundamental role in the reforms and modernization of accounting in the public sector in several countries. In this sense, there has been a need to raise awareness among information users of new realities. The authors also add that the public sector has not followed the harmonization of accounting practices in the private sector, meaning that the process of implementing standards has not yet been completely achieved.

Gomes et. al., (2023) state that teaching accounting in the public sector needs to expand its horizons, to be able to respond to emerging problems in public accounting. Namely: the valuation of heritage assets, corruption and the role of public accounting in a sustainable future. According to Adam et al., (2020) recent reforms in accounting systems favour and enhance investigations in this area. However, to carry out these reforms, people with the necessary skills and knowledge about the specificities of the public sector are needed. Therefore, one of the biggest current challenges is the training of public accounting professionals.

However, there is still little literature dedicated to the course syllabus, and which allows the assessment of possible suggestions for improvement. But Adam et al., (2020), also point out that subjects within the scope of public accounting are often available in the accounting degree, but on an optional basis. This situation conditions the immediate specialization of future professionals, with specialization in public accounting often being extended to the level of master's or postgraduate degrees, but without the preponderance of offers for the private sector.

3. Methodology

This study aims to obtain broader knowledge of a topic that is still little explored, aiming at exploratory research using descriptive statistics. According to Queirós et al., (2017), the quantitative approach allows obtaining information about a certain phenomenon, through the formulation of questions that reflect the opinions, perceptions and behaviours of a group of individuals.

To obtain evidence for the purpose under study, all HEIs that offer a degree in accounting in Portugal were flagged through the DGES website – General Directorate of Higher Education for the academic year 2023/2024.

Data collection was carried out through a questionnaire survey, with open and closed questions, sent electronically to 20 identified HEIs during the month of January 2024. This technique offers speed in obtaining data and ensures the confidentiality of responses, which is an essential factor as it involves information from several participants (Quivy & Campenhoudt, 1998).

The survey was prepared to understand the vision of the professors coordinating the accounting degree in three dimensions. It was divided into three sections that comprise a generic approach to the accounting degree, a specific approach to the public accounting curricular unit, and finally, an appreciation of the technical skills most valued for exercising the public accounting profession.

The data obtained in the survey were treated statistically. This possibility allowed, on the one hand, to consult the HEIs, in the role of coordinating professors, and obtain a more comprehensive knowledge about the degree study plans and the curricular units related to public accounting. On the other hand, it also added the possibility of asking their opinions regarding the training of future professionals in

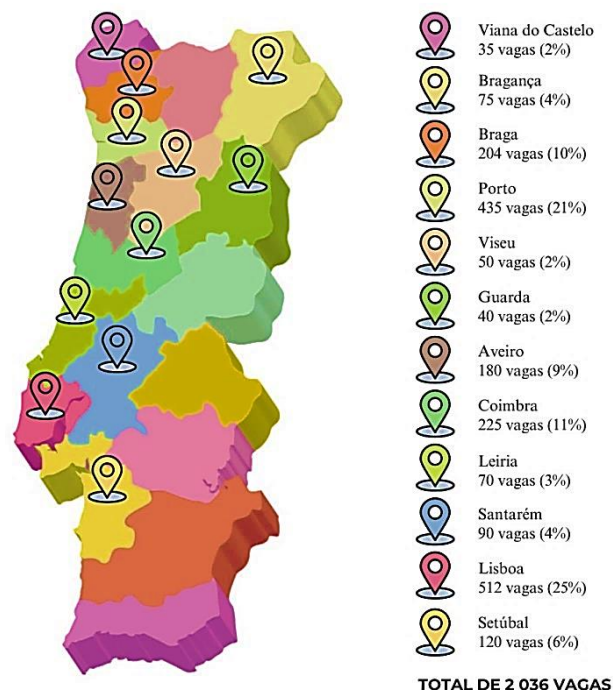
public accounting, assessing the possibility of recommendations and suggestions in the scope of their activities.

4. Results

The survey conducted among professors coordinating accounting degrees at 20 HEIs resulted in 11 valid responses, representing a response rate of 55%. The information obtained reveals crucial perceptions and opinions about the structure and study plan, as well as the relevance of the degree in the training of future professionals in the field of public accounting.

The data was examined based on available vacancies, by district, for accounting degrees for the 2023/2024 academic year, as presented below.

Figure 1: Distribution of vacancies for accounting degrees by district



Source: Own Elaboration

The coordinators' analysis revealed that the majority (83%) positively evaluated the study plan in relation to the principles and practices of public accounting. However, a significant proportion (54.4%) expressed the opinion that the current structure of the program does not provide balanced training for public accountants. Furthermore, more than half of the coordinators (54.5%) noted the absence of mention of the profession of public accounting in the professional outputs of the accounting degree.

Suggestions for improvements included the introduction of specific curricular units, internships, lectures and demonstration workshops. Most coordinators (81.8%) defended the integration of the opportunity to become a public

accountant in the degree study cycle. There was a similar consensus (81.8%) that there is room for improvement in the preparation of future professionals in public accounting.

Regarding practical concerns, 45% of coordinators considered the expected working hours to be insufficient. All coordinators unanimously agreed that public accounting curricular units should be preceded by a curricular unit on the structure of public administration. Furthermore, technical skills related to public accounting were assessed as important or very important by all coordinators.

5. Discussion

The survey results reveal a series of perceptions and opinions of accounting degree coordinators, providing important information about the effectiveness of the study plan and the preparation of students for public accounting.

The concern with the lack of balance in training for public accountants stands out, despite the recognition of the adequacy of the study plan in addressing the principles and practices of the area. The lack of reference to the profession of public accounting in career opportunities is identified as a significant gap, suggesting the need to review or include specific opportunities.

Suggestions for improvements, such as the implementation of specific curricular units and the holding of internships and demonstration workshops, reflect the demand for more practical and specialized training. The integration of the public accounting career into the degree study cycle is supported by most coordinators, despite the recognition of the need for additional training to meet the technical requirements of the profession.

The discussion about expected working hours and the inclusion of additional curricular units highlights the search for a balance between theory and practice in student training. The unanimity in the organization of the study cycle suggests a consensus on the importance of a structured and cohesive approach in preparing future professionals.

6. Conclusion

Currently, many professions are undergoing transformations because of market demands and advances in technology. In this scenario, the strategic alignment between HEIs and the needs of employers, in terms of acquiring future public accounting professionals, is a very relevant aspect. This study sought to analyse the adequacy of the accounting degree study plan in the training of public accountants according to the perception of the HEI course coordinators.

Although most accounting degree course coordinators consider the public accounting approach in the study plan to be appropriate, they also suggest the need for a more careful analysis of the curricular structure to better develop the public accountant's technical skills.

When publicizing the course's career paths, a gap was detected that more than half of the HEIs surveyed do not have a career path as a public accountant.

There was a recognition by course coordinators of the importance of technical skills associated with public accounting, highlighting the evident need for adjustments to the curricular structure (insertion of new curricular units) and working hours to ensure preparation most effective of future public accountants. However, they believe that this preparation would be more effective at the undergraduate level than at the specialization/postgraduate level.

References

- Adam, B., Brusca, I., Caperchione, E., Heiling, J., Jorge, S. M. F., & Manes Rossi, F. (2020). Are higher education institutions in Europe preparing students for IPSAS? *International Journal of Public Sector Management*, 33(2/3), 363-378. doi: <https://doi.org/10.1108/IJPSM-12-2018-0270>
- Akbulaev, N., Mammadov, I., & Shahbazli, S. (2021). Accounting education in the universities and structuring according to the expectations of the business world. *Universal Journal of Accounting Finance*, 9(1), 130-137. doi: <https://doi.org/10.13189/ujaf.2021.090114>
- Budding, T., de Jong, G., & Smit, M. (2022). New development: Bridging the gap—analysis of required competencies for management accountants in the public sector. *Public Money Management*, 42(7), 565-568. doi: <https://doi.org/10.1080/09540962.2022.2068862>
- Gomes, P., Teixeira, C., & Azevedo, G. (2023). Debate: Integrating new perspectives in public sector accounting education (PSAE). *Public Money Management*, 43(7), 727-728. doi: <https://doi.org/10.1080/09540962.2023.2248409>
- Grossi, G., Steccolini, I., Adhikari, P., Brown, J., Christensen, M., Cordery, C., . . . Vinnari, E. (2023). The future of public sector accounting research. A polyphonic debate. *Qualitative Research in Accounting Management*, 20(1), 1-37. doi: <https://doi.org/10.1108/QRAM-09-2022-0135>
- Heiling, J. (2020). Time to rethink public sector accounting education? A practitioner's perspective. *Journal of Public Budgeting, Accounting Financial Management*, 32(3), 505-509. doi: <https://doi.org/10.1108/JPBAFM-05-2020-0059>
- Heiling, J., Adam, B., Jorge, S., & Karatzimas, S. (2023). PMM CIGAR theme: Public sector accounting—educating for reform challenges. *Public Money Management*, 43(7), 722-724. doi: <https://doi.org/10.1080/09540962.2023.2256575>
- Neves, F. R., Aquino, A. C. B., & Silva, P. B. (2022). New development: The challenges of public sector accounting education in business schools. *Public Money Management*, 42(7), 569-572. doi: <https://doi.org/10.1080/09540962.2022.2066820>
- Queirós, A., Faria, D., & Almeida, F. (2017). Strengths and limitations of qualitative and quantitative research methods. *European journal of education studies*. doi: <http://dx.doi.org/10.46827/ejes.v0i0.1017>
- Quivy, R., & Campenhoudt. (1998). *Manual de investigação em ciências sociais*. Lisboa: Gradiva.
- Reichard, C., Küchler-Stahn, N., & Siegel, J. (2023). Education in public sector accounting at higher education institutions in Germany. *Public Money Management*, 43(7), 741-749. doi: <https://doi.org/10.1080/09540962.2023.2238913>

Steccolini, I. (2018). Accounting and the post-new public management: Re-considering publicness in accounting research. *Accounting, Auditing Accountability Journal*, 32(1), 255-279. doi:<https://doi.org/10.1108/AAAJ-03-2018-3423>

Exploring New Horizons in Corporate Hedging: Integrative Strategies and Future Research Directions

Ana Catarina de Paula Leite. Universidade de Coimbra, Faculdade de Economia, Portugal. anacatarinap.leite@gmail.com

Liliana Marques Pimentel. Universidade de Coimbra, Faculdade de Economia, Portugal. liliana.pimentel@fe.uc.pt

Leandro Monteiro. Universidade Federal Fluminense, Faculdade de Economia, Brasil. leandroalmeida@gmail.com

Abstract

Purpose: Building on the foundational work in risk management and hedging by Froot et al. (1993) and Smith and Stulz (1985), the academic landscape has evolved significantly. However, despite the groundwork laid by these seminal studies, there remains a distinct gap in fully capturing the breadth of contemporary research in the field. Given the rapid changes in the current economic, characterized by extraordinary volatility and emerging global dilemmas, the need for sophisticated risk management strategies has intensified, underscoring the critical importance of this area for ongoing scholarly investigation. This evolving context sets the stage for this research, which is driven by three key questions: (1) How are financial hedging strategies and operational strategies integrated in organizations? (2) What factors influence the decision to use financial hedging? And (3) What operational hedging strategies are discussed in risk management activities?

By analyzing these issues, the primary objective is to identify directions for future research in corporate risk management. It seeks to uncover new insights that could fuel subsequent academic investigations with the goal of significantly enhancing our understanding of risk management strategies in today's complex business environment. Additionally, the research endeavors to showcase empirically tested strategies, offering pragmatic insights poised to refine and inform decision-making processes in real-world scenarios.

Methodology: The methodology of this study employs an in-depth bibliometric analysis, focusing on key articles from the last decade in the field of "Business Economics", as

retrieved from the Web of Science database, ensuring a comprehensive overview of contemporary trends and discourses. The VOSviewer used for this analysis provides a graphical representation of bibliometric data using a similarity matrix and a metric called "strength of association," which facilitates an intuitive understanding of complex relationships within the data (Van Eck and Waltman 2007). This initial phase aims to uncover significant research gaps and emerging trends in the field of corporate risk management. Subsequently, the study expands into a comprehensive literature review, incorporating a wide range of studies to further investigate the integration of financial and operational hedging strategies in organizations, with the goal of providing a deeper understanding of current practices and potential research directions.

Results: The bibliometric mapping revealed distinct clusters of research, providing insights into core areas of risk management. Recent literature on hedging has demonstrated its diverse role in reducing uncertainty for multinational firms (Fisch and Pühr, 2022), enhancing firm value (Jiang and Feng, 2022), and supporting liquidity management for financially constrained firms (Shin and Pyo, 2019). Moreover, financial risk research has encompassed a range of strategies, including managing currency uncertainty (Fisch and Pühr, 2022), leveraging financial instruments and debt for value creation (Hadian and Adaoglu, 2020), and evaluating the benefits of cross-commodity hedging (Kar and Khandelwal, 2020). In addition, operational hedging has been introduced as a complementary tool by Fisch and Pühr (2022) and Laing et al. (2020). Almansur et al. (2020) focus on vertical integration, suggesting that firms expand their operations along the supply chain to mitigate input price risk.

The study highlights key findings that suggest new directions for research, particularly the impact of hedging strategies on broad financial indicators such as the Sharpe ratio. It emphasizes the importance of recognizing emerging and evolving risks, including issues related to illiquid markets, regional price differentials, increased volatility in commodity prices, and climate-related concerns such as carbon emissions. It also highlights the growing need to integrate environmental, social and governance factors into risk management practices. These emerging areas, which may not have been thoroughly covered in the current literature, represent significant gaps that future research needs to address in order to advance the discussion on corporate hedging.

This study deepens the understanding of the integration of financial and operational hedging strategies in organizations, highlighting the importance of flexibility and strategic coordination to improve corporate risk management. It makes a significant contribution to the literature by introducing a bibliometric analysis in this area and outlining new directions for future research. In terms of practical implications, it guides managers in formulating or refining hedging strategies, highlights effective tactics that have been validated, and suggests innovative and underexplored approaches for integrated management of financial and operational risks.

Research limitations: Although the study covers a wide range of existing literature, it recognizes the limitations of relying solely on published research, which may not fully capture current practices and emerging challenges in corporate hedging.

Originality: To the best of the author's knowledge, this study pioneers the fusion of bibliometric analysis with a comprehensive literature review in the area of corporate hedging. This innovative methodology not only maps the existing research terrain, but also identifies critical pathways for future academic inquiry. In doing so, it provides an essential foundation for advancing the understanding of risk management strategies. In addition, this dual-analytic approach allows for the dissection of research trends, the identification of seminal works, and the highlighting of underrepresented topics, providing a panoramic view that could stimulate a diverse array of future research topics within the intricate field of risk management.

Keywords: *Corporate hedging; Risk management; Hedging; Financial risk.*

Acknowledgements: This work has been funded by national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., Project UIDB/05037/2020.

References

- Almansur AM, Megginson WL, Pugachev L V. (2020) Vertical integration as an input price hedge: The case of Delta Air Lines and trainer refinery. *Financ Manage* 49:179–206. <https://doi.org/10.1111/fima.12260>
- Bai XW, Cheng LQ, Iris C (2022) Data-driven financial and operational risk management: Empirical evidence from the global tramp shipping industry. *Transportation Research Part E-Logistics And Transportation Review* 158:. <https://doi.org/10.1016/j.tre.2022.102617>
- Bolandifar E, Chen Z (2020) Hedging through index-based price contracts in commodity-based supply chains. *Omega (United Kingdom)* 90:. <https://doi.org/10.1016/j.omega.2018.10.006>
- Fisch JH, Pühr H (2022) Financial hedging and operational flexibility as instruments to manage exchange-rate uncertainty in multinational corporations. *Global Strategy Journal* 12:308–333. <https://doi.org/10.1002/gsj.1406>
- Froot KA, Scharfstein DS, Stein JC (1993) Risk Management: Coordinating Corporate Investment and Financing Policies. *J Finance* 48:1629–1658. <https://doi.org/https://doi.org/10.1111/j.1540-6261.1993.tb05123.x>

- Hadian A, Adaoglu C (2020) The effects of financial and operational hedging on company value: The case of Malaysian multinationals. *J Asian Econ* 70:. <https://doi.org/10.1016/j.asieco.2020.101232>
- Huang ZC, Zheng QP (2020) A multistage stochastic programming approach for preventive maintenance scheduling of GENCOs with natural gas contract. *Eur J Oper Res* 287:1036–1051. <https://doi.org/10.1016/j.ejor.2020.03.036>
- Jiang JQ, Feng Y (2022) Optimal hedging in the presence of internal flexibility. *International Journal Of Finance & Economics*. <https://doi.org/10.1002/ijfe.2664>
- Kar S, Khandelwal P (2020) Cross-hedging aviation fuel price exposures with commodity futures: Evidence from the Indian aviation industry. *IIMB MANAGEMENT REVIEW* 32:389–401. <https://doi.org/10.1016/j.iimb.2021.02.002>
- Laing E, Lucey B, Lutkemeyer T (2020) Which form of hedging matters — Operational or financial? Evidence from the US oil and gas sector. *Res Int Bus Finance* 51:. <https://doi.org/10.1016/j.ribaf.2019.101088>
- Shin YJ, Pyo U (2019) Liquidity hedging with futures and forward contracts. *Studies In Economics and Finance* 36:265–290. <https://doi.org/10.1108/SEF-04-2018-0109>
- Smith CW, Stulz RM (1985) The Determinants of Firms' Hedging Policies. *The Journal of Financial and Quantitative Analysis* 20:391–405. <https://doi.org/10.2307/2330757>
- Van Eck NJ, Waltman L (2007) Bibliometric mapping of the computational intelligence field. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems* 15:625–645
- Wang M, Huang H (2019) The design of a flexible capital-constrained global supply chain by integrating operational and financial strategies. *Omega (United Kingdom)* 88:40–62. <https://doi.org/10.1016/j.omega.2018.11.016>

The perceived usefulness of internal audit in the performance of Portuguese public hospitals

Sara Serra. Research Centre on Accounting and Taxation, Polytechnic University of Cávado and Ave, Portugal, sserra@ipca.pt

Patrícia Gomes. Research Centre on Accounting and Taxation, Polytechnic University of Cávado and Ave, Portugal, pgomes@ipca.pt

Olga Lameira. Polytechnic University of Cávado and Ave, Portugal, olga.ma.lameira@gmail.com

Abstract

Purpose: This research aims to study internal audit practices in Portuguese public hospitals and their perceived usefulness and impact on the organization's performance.

Methodology: A questionnaire was developed and applied to all Portuguese public hospitals. Of the 50 hospitals surveyed, we obtained a response rate of 78%, corresponding to 39 hospitals.

Results: The results reveal that most Portuguese public hospitals have an Internal Audit Department, and these practices are highly valued in healthcare institutions. The results demonstrate that internal audit plays a crucial role in enhancing the efficiency of resource management and shaping the organizational culture of hospitals, aligning with the principles of New Public Management.

Research limitations: This study's main limitation is not only the data collection technique used but also the complexity of questioning stakeholders about behaviors that can be challenging to represent in a study of this nature.

Originality: This study fills a significant gap in the literature on internal auditing in the hospital sector. Unlike most studies that focus on a single hospital or only explore internal auditing, our investigation provides a comprehensive understanding. It underscores the impact of these practices on the quality of health services and paves the way for future research in this area.

Keywords: *Internal Audit; Efficiency and Effectiveness; Portuguese public hospitals; Questionnaire.*

Acknowledgements: *This study was conducted at the Research Center on Accounting and Taxation (CICF) and was funded by the Portuguese Foundation for Science and Technology (FCT) through national funds (UIDB/04043/2020 and UIDP/04043/2020).*

1. Introduction

Hospitals must improve their management methods by promoting innovation and optimizing the use of resources and sustainable development. In this context, effective hospital management does not only depend on the effort and dedication of healthcare professionals but also on an organized team that works in various areas, including internal audit. According to Sakhil et al. (2023), internal audit in hospitals promotes goal achievement, aids management in decision-making, and enhances entity performance.

Within the scope of this theme, this article aims to study the use of internal audit practices in Portuguese public hospitals, as well as their perceived usefulness and impact on the organization's performance. To respond to these objectives, we carried out a questionnaire survey.

This article includes an introduction, a brief literature review on the topic, and an empirical study.

2. Literature Review

2.1. The Healthcare System in Portugal

The healthcare system used in Portugal is based on the Beveridge model, relying on the financing health services through revenues obtained from taxpayers' income taxes, consolidated into a public system where the right to health is provided regardless of work and employment status (Cantante et al., 2019).

From the 1990, the healthcare system was regulated through two legislative acts: the Basic Health Law (Law No. 48/90, of August 24) and the National Health Service Statute (Law No. 22/93, of January 15). This year was considered by many to be the turning point for the Portuguese Health System (Baganha et al., 2002).

Cantante et al. (2019) mention that the healthcare system in Portugal integrates a combination of both public and private financing, thus encompassing the National Health System, which is mostly funded by taxes, and the establishments under the jurisdiction of the Ministry of Health.

2.2. The Efficiency and Effectiveness of the Public Health System

The efficiency and effectiveness of an institution are measured through the quality of services provided, the necessary resources, the good results obtained, and the low financial costs. These are two concepts widely used to evaluate the performance and impact of health services on a population (Ferreira, 2012).

Efficiency refers to the ability of the healthcare system to use its resources effectively, minimizing waste and increasing productivity. This efficiency is only possible if the necessary resources are appropriately allocated: qualified personnel, infrastructure, technologies, and funding. On the other hand, effectiveness is related to the ability of the healthcare system to achieve the desired outcomes, which requires that health services be provided according to scientific evidence to ensure patients receive appropriate treatments and care.

An efficient and effective healthcare system should provide quality health services at the lowest cost and improve the population's health by preventing diseases, treating medical conditions, and ultimately providing a good patient experience. For instance, an efficient public health system could ensure that

vaccines are distributed promptly and effectively, reducing the spread of infectious diseases. Similarly, an effective system could provide timely and accurate health information to the public, empowering individuals to make informed health decisions.

In 2010, the World Health Report reinforced what was previously mentioned, stating that promoting the efficiency of a healthcare system can be ensured if the available resources are used efficiently. However, there are several challenges to achieving this, such as limited funding, inadequate infrastructure, and a need for more qualified personnel. Another way to promote efficiency in the healthcare system is to improve the quality of services, thereby making the most of existing technologies and health services. However, this can be hindered by factors such as outdated equipment or a lack of training for healthcare professionals. Additionally, health professionals should be motivated, and the waste of medications should be reduced, but this cannot be easy to achieve in practice.

Campos (2007), cited by Duarte (2017), mentions that the efficiency and effectiveness of the National Health System is more than a budgetary or economic issue; it becomes an ethical issue. If the National Health System is not efficient, it does not contribute to health gains. In fact, a lack of efficiency and effectiveness can lead to delayed or inadequate treatments, increased healthcare costs, and a decline in public health outcomes. Efficiency and effectiveness are conditions of equity and quality in health; thus, a more efficient and citizen-oriented system should be constructed. While providing quality health care can contribute to cost reduction, it is also necessary to implement measures that ensure the efficiency and effectiveness of these services.

According to Duarte (2017), in recent years, citizens have been seeking higher-quality healthcare services. This demand results from a better quality of life and

technological advances that facilitate access to specialized treatments and effective care. Thus, the pursuit of efficiency and effectiveness in the healthcare system has become one of the main concerns of citizens, health professionals, and even managers today.

Bonatto et al. (2022) state that efficiency is related to the best possible performance, while effectiveness implies adequate performance, compatible with or superior to a goal. To measure efficiency, it is necessary to compare the obtained performance with the maximum possible performance value. However, when evaluating efficiency in public service, it is required to consider specific conditions rather than merely compare them with an arbitrary goal, as indicators are the premise of analysis. Thus, efficiency indicators are essential for analysing the functioning of a particular function or process and verifying whether they are aligned with the established planning.

2.3. Internal audit in the hospital system

Internal audit is a vital component in the pursuit of effectiveness and efficiency within an institution, making it an indispensable part of the hospital system. As Duarte (2017) points out, in the hospital system, an internal audit is designed to verify the quality of care provided to patients, aiming to strike a balance between the services offered and citizen satisfaction. This is achieved by correlating the efficiency in the use of resources (human, technological or financial) with appropriate care and health outcomes, thereby ensuring the best possible patient care and hospital management.

Andrade and Sicheski (2017) emphasize that internal audit is essential for the excellence of hospital management and the systematic investigation process so that managers devote attention to the administrative processes of planning,

verification, control, and execution. In this way, hospital administration guarantees the reduction of costs in providing services and optimizing processes.

Internal audit is a regulated activity that adheres to a set of rules and standards, playing a pivotal role in the audit process. As Almeida (2019) underscores, these standards not only affect the professionals involved in the audit process, but also shape the perspective of users of the audited information and society. In the context of the public sector, Bairral et al. (2015) assert that internal audit influences the level of information disclosure, particularly in terms of compliance. This is significant as citizens are keen on ensuring that public bodies are disclosing information correctly and transparently, thereby fostering trust and accountability in the public sector.

Nedyalkova (2020) highlights that internal audit results can demonstrate development and changes in the way public sector entities operate in relation to their organization and management. Internal audit aims to identify weaknesses in the financial management and control system and potential opportunities to improve the entity's performance.

Félix and Morais (2013) also state that internal audit in the public sector must issue an opinion on the adequacy of public resource management and compliance with legal criteria to add value to the organization through the economical, effective, and efficient use of resources.

Alves et al. (2002) state that internal audit is more critical in the public sector, as their resources are public and require vigilance from everyone, and societies demand more transparency in using public resources. This transparency can be achieved more effectively with the help of an internal audit, as the activities carried out by an internal audit serve as a means of verifying all internal

procedures, established policies, and adequately followed legislation. Furthermore, these activities ensure the confidentiality of recorded data and transparency in the use of public resources and strengthen society's trust (Morais & Martins, 2013). Corroborating this idea, Petsi et al. (2023) state that internal audit functions increase transparency, enforce accountability, and ensure compliance with social values, reinforcing public trust.

Zambrano et al. (2022) also demonstrate the importance that internal audit plays in the management of public sector organizations, as well as its effectiveness, which is defined by influencing corporate management and achieving goals. For instance, internal audit may identify inefficiencies in a company's supply chain, leading to cost savings and improved customer satisfaction. The authors highlight competence, management support and external relationships as key factors of internal audit. Therefore, it is expected that entities with an internal audit department will have a different perception of its usefulness compared to entities that do not have an internal audit department, given that the former can feel the benefit of its practices.

Sousa (2016) argue that internal audit constantly supervises the validity of the control systems implemented by management and their effective compliance. Figueiredo (2016) highlights that internal audit began to analyze transactions to prevent fraud, focus on evaluating internal controls, and reduce errors (Roza, 2018).

According to Sakhil et al. (2023), internal audits in hospitals are tools that identify the strengths and weaknesses of the internal control system and the effective control over it. As such, the authors recommend integrating internal auditing with the internal control system to diagnose deviations and work towards resolving

them. This will contribute to improving the performance of healthcare institutions and achieving the sustainable development goal of promoting well-being for all.

As mentioned by Silva (2000), the recommendations made by the audit to correct necessary aspects must be considered by those responsible for the services so that they can discuss them and justify their position about these recommendations. Furthermore, according to Rubio et al. (2014), internal audit plays a fundamental role in the organization, ensuring and preserving its health. It is possible to provide a safe and comprehensive assessment of the organization through periodic examinations. This assessment covers several aspects, such as operational efficiency, compliance with rules and regulations and the effectiveness of organizational practices. Therefore, internal auditing is crucial to the organization's performance.

3. Methodology

This study deals with the role of internal audit in the public hospital system in Portugal. It aims to study the use of internal audit practices in the public hospital system and their perceived usefulness and impact on the organization's performance. We developed a questionnaire that was applied to all public hospitals.

The questionnaire was addressed to the President of the Board of Directors and/or the President of the institution's Executive Board. The option to use an online questionnaire, specifically through Google Forms, was chosen due to the greater ease of obtaining responses and processing the data.

In designing the questionnaire, we include short answer or closed-ended questions, ensuring the utmost ease in data processing and analysis. The closed-

ended questions consist of yes/no scales or a five-point Likert scale, ranging from the lowest level of agreement, "Strongly Disagree," to the highest level of agreement, "Strongly Agree." The questionnaire is divided into four sections, each carefully designed to provide comprehensive insights. The first section was intended to characterize the institution, and the second section to characterize the respondent. The third section addressed audit practices to assess the type of team, the frequency of internal audits, and the practices applied by that department. The last section included questions about the usefulness and impact of internal audit practices on organizational improvement.

After drafting the questionnaire, a pre-test was conducted to identify possible inconsistencies in its structure and ensure participants' easy comprehension. The pre-test was conducted with the head of the internal audit department of a hospital. The questionnaires were emailed to the institutional address, aiming to request participation in the study, explain the objectives, and guarantee the anonymity of the responses. Subsequently, the data collected through the administered questionnaire were extracted into a spreadsheet, and the database was processed using Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) software.

Of the 50 hospitals surveyed, we obtained a response rate of 78%, corresponding to 39 hospitals, 33 of which were Public Business Entity Hospitals (EPE) and 6 Public Administrative Sector Hospitals (SPA).

4. Results

The first question in the questionnaire asked about the institution's name. However, this information will not be disclosed due to confidentiality. We will process the data according to the type of institution: a Public Administrative

Sector Hospital (SPA) or a Public Business Entity Hospital (EPE). Next, we will analyze the responses obtained (see Table I).

Table I: Sample Characterization

Sample Characterization		N	%
Type of Entity	Public Administrative Sector Hospitals (SPA)	6	15.38
	Public Business Entities Hospitals (EPE)	33	84.62
Budget Expense	Average Total Executed Budget Expense in 2021	€144737184,47	2.63
Respondents' Gender	Male	22	56.41
	Femele	17	43.59
Age	31 to 45 years	14	35.90
	46 to 55 years	13	33.33
	56 to 65 years	9	23.08
	Over 65 years	2	5.13
Qualifications	Bachelor's Degree	13	33.33
	Master's Degree	7	17.95
	Post-Graduate/MBA	16	41.03
	Doctorate	3	7.69
Experience	Less than 1 year	5	12.82
	1 to 5 years	19	48.72
	6 to 10 years	12	30.77
	More than 10 years	3	7.69

Source: Own Elaboration.

In Table I, we find information about the respondents who participated in the study. Of the 39 institutions involved, 15.38% belong to Public Administrative Sector Hospitals (SPA), while 84.62% are Public Business Entity Hospitals (EPE).

The average total budget for both types of institutions is €144,737,184.47.

The respondents are 43.59% female and 56.42% male, with males predominating in all hospital institutions. Regarding age, 35.90% of the

respondents are between 31 and 45 years old, 33.33% are between 46 and 55, 23.08% are between 56 and 65, and only 5.13% are over 65.

As for academic qualifications, 33.33% have a bachelor's degree, 17.95% have a master's degree, 41.03% have a postgraduate degree/MBA (the predominant category), and 7.69% have a doctorate.

To analyze professional experience, we use time intervals to better understand it. 12.82% have been performing their duties for less than a year, 48.72% have between 1 and 5 years of experience, 30.77% have between 6 and 10 years, and 7.69% have more than 10 years of service.

When analyzing the information obtained in the questionnaire, we found that 94.9% of hospitals have an Internal Audit Department. This department is made up of 84.6% of administrative staff. In the remaining institutions, respondents mentioned different practices, namely the existence of an Internal Auditor.

Regarding the number of members of the Internal Audit Department, we found that the majority (53.8%) have only one member, 25.6% of hospitals have two members in the Internal Audit Department, 7.8% have three members and three members. and the remaining 7.8% of hospitals comprise five elements.

The results also revealed that 41% of institutions stated that audits are carried out according to the approved plan without specifying a frequency. Of the hospitals that specified the frequency, 36.4% stated that internal audits are carried out quarterly, 31.8% monthly, 13.6% semi-annually, 13.6% bimonthly, and 4.6% annually.

The results also made it possible to determine that most institutions follow internal audit practices, preparing annual plans and reports and communicating improvements to the board of directors. However, some do not implement

corrective measures after internal audits. Full-time internal auditors are familiar, but three hospitals do not have internal auditing. Since 36 institutions have a full-time internal auditor, they usually follow the technical skills required by internal auditing, generally conducted independently and objectively, facilitating the link between audit plans and risk assessment, except for two institutions that disagree.

The perceived usefulness of internal audit is one of the dimensions that we intend to study in this work. Table II presents the respondents' perception of the usefulness of internal audit practices for their institution. This dimension includes eight items corresponding to different internal audit practices, in which the respondent evaluates their usefulness on a Likert scale (1 - I totally disagree and 5 I totally agree).

Table II: Perceived usefulness of Internal Audit practices

	No.	Minimum	Maximum	Mean	Standard deviation
Internal audit assesses whether the hospital's existing resources meet its needs.	39	1	5	3,46	1,166
Internal audit helps to promote the efficiency and effectiveness of hospital services.	39	3	5	4,54	,682
Internal audit ensures the effective management of the resources available in the institution.	39	3	5	4,26	,751
Internal audit influences the institution's organizational culture.	39	2	5	4,23	,810
Internal audit allows you to measure the Institution's progress.	39	1	5	3,74	,993
Internal audit will enable you to define the institution's priorities.	39	1	5	3,49	1,048
Internal audit ensures accountability.	39	1	5	3,77	1,327
Internal audit adds value to the institution.	39	3	5	4,72	,510

Source: Own Elaboration.

Table I shows that most of the practices presented are considered to be valuable to the institution. The analysis reveals that most respondents agree that internal audit promotes efficiency and effectiveness in hospital services, influence organizational culture, and add value to the institution. In this way, we validate one of the assumptions made in the literature about the impact that internal audit practices have on performance in the hospital system, since when we question “internal audit adds value to the institution” or “internal audit contributes to ensuring the effective management of the resources available in the institution” because have an average of 4.72 and 4.26, respectively.

These objectives are in line with the foundations of New Public Management, as it aims to improve the effectiveness and efficiency of operations and the use of public resources, as referred to by Hood (1991), at the same time as it introduces a management approach inspired by models of the private sector. Through this change, we observed economic improvements, information transparency and performance evaluation (Denhardt & Denhart, 2000). This framework seeks to evaluate management performance and implement innovative practices and strategies from the private sector (marketization). By doing so, the organization optimizes its processes and adopts more agile and results-oriented approaches, thus contributing to alignment with New Public Management principles (Hammerschmid et al., 2019).

With this analysis, we can consider internal audit to be an important instrument in healthcare institutions, as it promotes their efficiency and effectiveness in using the resources and services available and influences their organizational culture.

The questionnaire included five questions to analyze internal audit's impact on organizational performance.

Table III: Impacts of Internal Audit on organizational performance

	No.	Minimum	Maximum	Mean	Standard deviation
Internal audit promotes continuous improvement in the quality of the institution's services.	39	3	5	4,41	,637
Internal audit supports top management in decision-making to ensure healthcare and patient safety.	39	2	5	4,00	1,000
Internal audit provides information about cooperation and communication problems in the organization.	39	3	5	4,10	,788
The internal audit results influence the review and adjustment of policy and organizational strategy, with a view to continuous improvement.	39	2	5	4,13	,767
Internal audit influences the relationship between top management and teams and departments with a view to continuous improvement.	39	2	5	3,97	,843

Source: Own Elaboration.

Analysis of Table III reveals that most institutions agree that internal audit positively improves service quality. We found that institutions consider internal audit promotes continuous improvement in the quality of the institution's services, provide information on cooperation and communication problems in the organization, and influence the review and adjustment of policy and organizational strategy with a view to continuous improvement. The averages presented are 4.41, 4.10, and 4.13, respectively. These results corroborate those of Andrade and Sicheski (2017) and Almeida (2019), who assessed in their studies the importance internal auditing has for the excellence of hospital

management and the systematic research process, influencing the perspective of information users, auditee and society in general.

Internal auditing is also seen as an essential support for decision-making related to patient safety. Furthermore, many institutions believe it provides valuable information about cooperation and communication problems within the organization. Internal audit results are widely influential in reviewing and adjusting organizational policy and strategy.

5. Conclusion

This study addressed respondents' perceptions of internal audit practices in the Portuguese hospital system, analysing 39 institutions. The results showed that several internal audit practices are used in Portuguese public hospitals. Internal audit has a positive impact on organizational culture and the efficiency of hospital services. Most institutions believe that this allows them to measure progress, define priorities, promote accountability, and add value to the institution. The study highlights the importance of internal audit in improving hospital institutions' efficiency, performance, and resource management.

The research on respondents' perception of internal audit in public hospitals in Portugal provides valuable insights into how this practice contributes to the quality and effectiveness of health services. The continuous search for efficient and transparent management is essential to meet the population's needs and ensure the responsible use of public resources. Despite the contributions, this study can offer to the academic and professional community, its limitations may affect its results.

The main limitation of this study may lie not only in the data collection technique used but also in the complexity of questioning stakeholders about behaviours that may be challenging to represent in a survey of this nature. This could potentially lead to a skewed understanding of the internal audit practices in Portuguese public hospitals. Another significant limitation related to sample size was identified regarding data collection and processing. Despite a response rate of 78%, the universe considered for the investigation was restricted since our research focused only on public hospitals rather than existing hospitals in Portugal. This could limit the generalizability of our findings to the entire hospital system in Portugal.

Some of the limitations previously mentioned can be undone in future work, so it is suggested that this study be extended to private hospitals in Portugal or internationally. Comparing public and private hospitals would also be interesting.

References

- Almeida, B. (2019). *Manual de auditoria financeira* (5). Escolar Editora.
- Alves, A., & Reis, J. (2002). Auditoria interna no setor público. In *IX Encontro Latino Americano de Iniciação Científica e V Encontro Latino Americano de Pós-Graduação – Universidade do Vale do Paraíba*, 841–844. <https://biblioteca.univap.br/dados/INIC/cd/inic/IC6%20anais/IC6-63.PDF>
- Andrade, F., & Sicheski, S. J. (2017). Auditoria interna hospitalar: Uma atividade de apoio à tomada de decisão. *Auditoria Interna*, 38 (24), 13-23.
- Baganha, M. I., Ribeiro, J. S., & Pires, S. (2002). O setor da saúde em Portugal: Funcionamento do sistema e caracterização sócio-profissional. *Oficina do CES*, (182), 1-33.
- Bairral, M. A. D. C., Silva, A. H. C., & Alves, F. J. D. S. (2015). Transparência no setor público: Uma análise dos relatórios de gestão anuais de entidades públicas federais no ano de 2010. *Revista de Administração Pública*, 49, 643-675.
- Bonatto, H., Silva, C. L. D., Nogueira, S. P. D. S., Ribeiro, N. A. B., & Lima, N. C. (2022). *Avaliação da eficiência no sistema de saúde na microrregião de Paranaguá. Informe GEPEC*, 26 (2), 161-189. DOI: 10.48075/igepec.v26i2.28821

- Cantante, A. P. D. S. R., Fernandes, H. I. V. M., Teixeira, M. J., Frota, M. A., Rolim, K. M. C., & Albuquerque, F. H. S. (2019). Sistemas de saúde e competências do enfermeiro em Portugal. *Ciência & Saúde Coletiva*, 25, 261-272.
- Denhardt, R. B., & Denhardt, J. V. (2000). The new public service: Serving rather than steering. *Public Administration Review*, 60 (6), 549-559.
- Duarte, M. D. S. (2017). A importância da auditoria interna para uma gestão eficiente e eficaz em instituições hospitalares do setor público (Dissertação de Mestrado, Instituto Politécnico Do Porto). Repositório Científico do Instituto Politécnico do Porto. <https://recipp.ipp.pt/handle/10400.22/10957>.
- Felix, S. A. L., & Morais, G. (2013). Uma análise sistémica da auditoria interna nos municípios em Portugal. *Revista IPAI nº53, outubro/dezembro*.
- Ferreira, M. (2012). Contributo para a eficácia, eficiência e qualidade de processos na administração pública (Dissertação de doutoramento não publicada), Universidade Técnica de Lisboa, Portugal
- Hammerschmid, G., Van de Walle, S., Andrews, R., & Mostafa, A. M. S. (2019). New public management reforms in Europe and their effects: Findings from a 20-country top executive survey. *International Review of Administrative Sciences*, 85 (3), 399-418.
- Hood, C. (1991). A public management for all seasons? *Public Administration*, 69(1), 3-19.
- Morais, G., & Martins, I. (2013). *Auditoria interna - função e processo* (4). Áreas Editora.
- Nedyalkova, P. (2020). Quality of internal auditing in the public sector. *Springer International Publishing*.
- Petsi, M., Grose, C., Kalialakis, I., & Talias, M. (2023). Internal Audit in Public Hospitals: the case of Greece. *Oeconomica Jadertina*, 13(2), 152-167.
- Roza, M. M. (2018). A importância da Auditoria Interna na Organização Pública-Caso do Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso-IFMT (Doctoral dissertation, Instituto Politecnico do Porto).
- Rubio, A., Silva, J., & Guimarães, T. (2014). Auditoria interna e sua importância para as organizações. *Revista Saberes da FAPAN* (2.), dezembro 2014.
- Sakhil, A. M., Abbas, Y. K., Sallal, F. F. J., & Allawi, K. M. (2023, April). The role of internal auditing in improving performance of health institutions to achieve sustainable development. In *AIP Conference Proceedings*, 2776 (1). AIP Publishing.
- Silva, A. (2000). Auditoria do management público. Universidade Autónoma de Lisboa.
- Sousa, Á. (2019). Coeficiente de correlação de Pearson e coeficiente de correlação de Spearman: O que medem e em que situações devem ser utilizados?. *Correio dos Açores*, 19.
- Zambrano, D. A. J., & Perea, J. D. A. (2022). La efectividad de la auditoría interna en el sector público: Una revisión de literatura. *Administración & Desarrollo*, 52 (1), 74-94.

