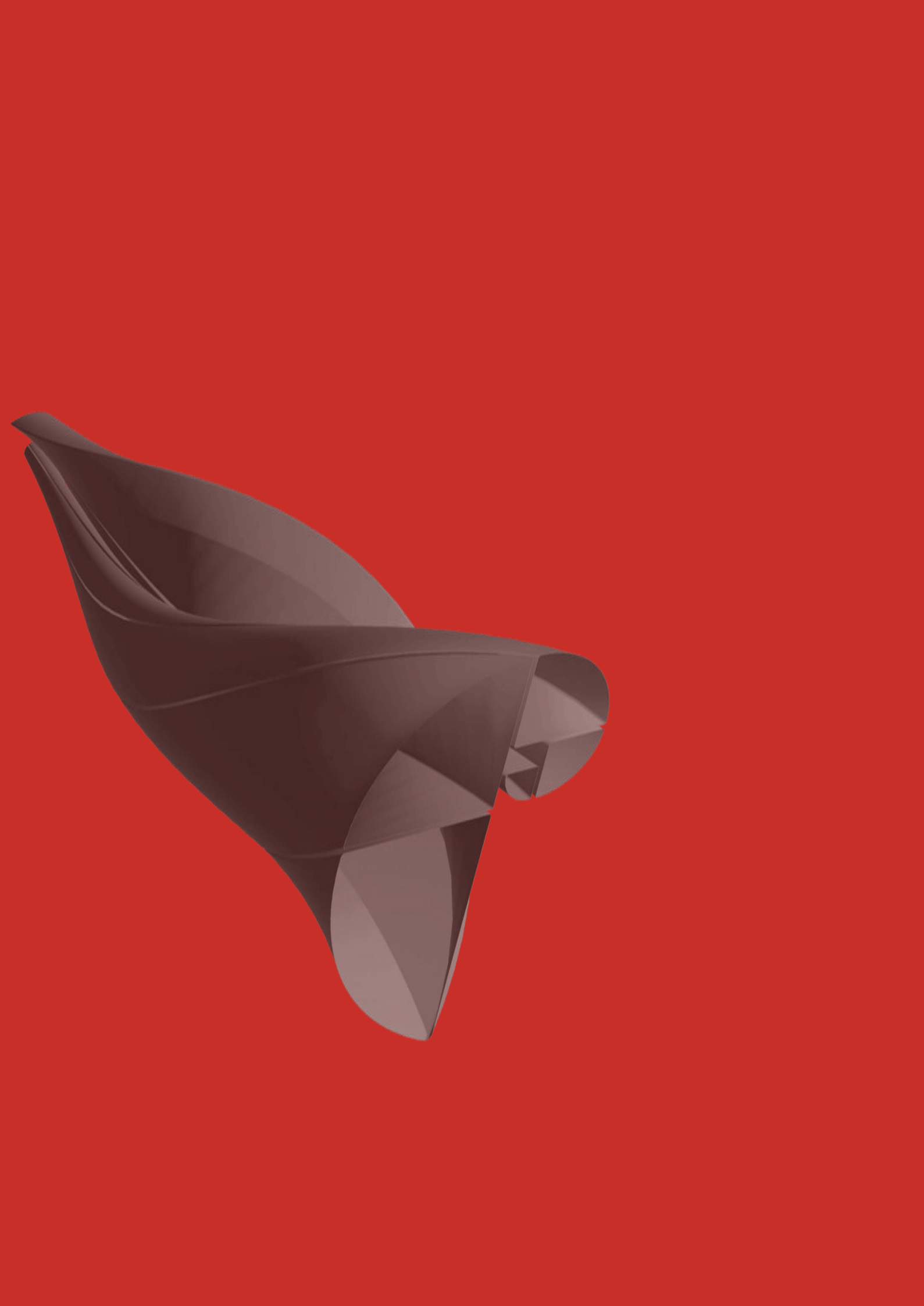


IX Regional

HELIX 25

Transforming regions through
innovation, sustainability
and collaboration

Bragança . 2025



TOPICS

Management
Innovation
Sustainability
Digital Transformation
Collaboration and Networks
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Book of Extended Abstracts

IX Regional Helix'25

Transforming regions through innovation, sustainability and collaboration

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Acknowledgement and Gratitude

On behalf of the Organising Committee, we would like to extend our sincere thanks to everyone who contributed to the success of the IX International Regional Helix'25 Congress, held from 26th to 28th June at the School of Technology and Management of the Polytechnic Institute of Bragança (IPB), and organised by the Applied Management Research Unit (UNIAG).

The event demonstrated the essential role of collaboration among the four key actors of the Quadruple Helix model - academia, industry, government, and civil society - as a driver of sustainable regional development. We were especially pleased to count on the participation of members from the STARS EU consortium and the Thematic Interest Group (TIG) on Entrepreneurship & Innovation, whose contributions to the organising and scientific committees, as well as to the scientific programme, reflected a strong commitment to cooperation and innovation.

A particularly memorable moment of the congress was the round table "Transforming Regions through Innovation, Sustainability and Collaboration", which fostered critical dialogue on the challenges and opportunities of collaborative innovation and the role of the Quadruple Helix in regional transformation. We thank all speakers for their valuable contributions and for enriching this important session with meaningful perspectives.

The programme also included a Doctoral Forum, offering PhD students a valuable platform to present their research and receive feedback from experienced academics. This initiative supported scientific quality, intergenerational exchange, and the visibility of emerging researchers in an international context.

A total of 62 papers were submitted, representing over 150 authors and addressing a wide range of themes, including management, digital transformation, tourism, cultural heritage, entrepreneurship, regional economics, sustainability, and green transitions. Eleven of these papers were recognised during the closing session for their scientific excellence.

The quality and impact of the congress are a direct result of the outstanding work presented and the depth of discussion led by all participants, researchers, keynote speakers, and moderators. With participants from Albania, Brazil, Chile, Colombia, Mexico, the Netherlands, Spain, and Portugal, the congress reinforced its international dimension and its role as a platform for knowledge sharing, collaboration, and regionally focused innovation.

We are grateful to the Presidency of the Polytechnic Institute of Bragança, the Management Board of the School of Technology and Management, the Vice-Presidency for Communication, and the IPB Image Services and IT Technical Services for their support, as well as to the Foundation for Science and Technology, UNIAG, and all sponsoring organisations, both public and private, for making this event possible.

A special thank you goes to the Scientific Committee and the Steering Committee, whose valuable guidance and support were instrumental to the success of Regional Helix'25. Last but not least, heartfelt thanks to the Organising Committee and its dedicated team for their commitment, professionalism, and enthusiasm throughout what was both a challenging and rewarding mission.

As this chapter closes, we reaffirm our belief in the relevance and future potential of the Regional Helix initiative. We hope it continues to inspire reflection, foster meaningful debate, and open new paths for cooperation, knowledge transfer, and shared development.

Many thanks to all!

Paula Odete (General Chair)
UNIAG, Instituto Politécnico de Bragança, Bragança, Portugal

Awards

Best Paper Award Certificate

Session: Doctoral Symposium

Paper: The University as an Ecosystem: Exploring Relationships with Environment and Stakeholders

Authors: Paula Marchant-Pérez, João Ferreira, & David Urbano

Session: Collaboration and Networks

Paper: Defining Industrial Tourism in the Cross-Border Region of Portugal and Spain

Authors: Elaine Scalabrini, Francisco Alves, Reginaldo Neto, Felipe L. Teixeira, Joaquín Garcia, Miguel Velasco, João Paulo Teixeira, Roberto Ivo Vaz, & Paula Odete Fernandes

Session: Digital Transformation

Paper: Does Virtual Reality Tourism Have a Future? An Application of the PPM Framework

Author: Sonia San-Martín

Session: Innovation

Paper: What's Behind China's Technological Paths? A Study on Green Patents in Nuclear Energy

Authors: Frederico Donadon, Geciane Porto, & Alexandre Dias

Session: Management

Paper: The Impact of Corporate Governance on the Debt: The Hospitality Industry

Authors: Barbara Pereira, Jorge Alves, & Nuno Moutinho

Session: Regional Economy

Paper: Motivations to Interact with Industry and Academic Engagement

Authors: Alexandre Dias, Camilly Ferreira, & Flávia Vicentin

Session: Sustainability

Paper: Enhancing Renewable Energy Utilization Through Residential Peer-to-Peer Trading

Authors: Paulo Borges, Maria Varanda Pereira, & Ângela Ferreira

Session: Tourism and Cultural Heritage

Paper: Within the Walls: An Augmented Reality and Serious Game to Engage Generation Z in Historical Sites Visits

Authors: Roberto Vaz, Márcia Vaz, Paula Odete Fernandes, & Hélder Gonçalves

Honourable Mention Award Certificate

Session: Digital Transformation

Paper: Big Data Analysis in Cost Management: Opportunities and Challenges in a Regional SME

Authors: Joaquim Leite, Cecília Carmo, & Virgínia Guedes

Session: Entrepreneurship and Regional Economy

Paper: AI-Driven Sustainable Alliances for Regional Innovation: Strategic Governance and Digital Transition

Authors: Diederich Bakker & Daniela Naydenova

Session: Tourism and Cultural Heritage

Paper: Growing Younger through Travel: Senior Tourism Strategies for Well-Being in Ageing and Low-Density Territories

Authors: Jessica Ferreira, António B. Fernandes, & Sofia Cardim

Regional HELIX'25 Programme

26 . 27 . 28 June 2025

Day 1

26 June • Thursday

09h30 Participants Reception | Escola Superior de Tecnologia e Gestão (ESTiG)

09h45 Doctoral Symposium | Eng. Alcínio Miguel Auditorium

12h30 Lunch | IPB Canteen

14h00 Secretariat for Registration | Eng. Alcínio Miguel Auditorium

14h30 Musical Moment | Eng. Alcínio Miguel Auditorium

14h45 Opening Session | Eng. Alcínio Miguel Auditorium

Orlando Rodrigues, President of the Instituto Politécnico de Bragança
Nuno Ribeiro, Head of the Escola Superior de Tecnologia e Gestão
Luís Farinha, Member of the Steering Committee of Regional Helix'25
Paula Odete Fernandes, General Chair of Regional Helix'25

15h15 Round Table: "Transforming regions through innovation, sustainability and collaboration" | Eng. Alcínio Miguel Auditorium

Luís Pais, Vice-President of the Instituto Politécnico de Bragança and STARS EU
Coordinator at IPB
Raquel Meira, Director of the Regional Planning and Development Unit, Northern Regional
Coordination and Development Commission (CCDR-N)
Marina Ranga, Manager of the Ulyseus Innovation Hub, University of Seville
Augusto Oliveira, CEO of C-Pack Creative Packaging Portugal
Moderator: António José Rodrigues, Mensageiro de Bragança

16h45 Coffee Break | Auditorium Foyer

17h25 Parallel Sessions

20h15 Gala Dinner with D'Alma Fado | Pousada São Bartolomeu

Day 2

27 June • Friday

09h30 Social Programme – Bragança: Walk, Feel, Discover | Meeting Point: Praça da Sé, Bragança
13h30 Free time for lunch

09h15 Participants Reception | Escola Superior de Tecnologia e Gestão (ESTiG)

09h30 Parallel Sessions

11h00 Coffee Break | Auditorium Foyer

11h30 Parallel Sessions

13h00 Lunch | IPB Canteen

14h30 Parallel Sessions

16h30 Awards Ceremony Regional Helix'25 | Eng. Alcínio Miguel Auditorium

17h00 Closing Session | Eng. Alcínio Miguel Auditorium

Dionísio Gonçalves, President of the General Council of the Polytechnic Institute of Bragança
Orlando Rodrigues, President of the Instituto Politécnico de Bragança
Pedro Lima, President of CIM Terras de Trás-os-Montes
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Luís Farinha, Member of the Steering Committee of Regional Helix'25
Paula Odete Fernandes, General Chair of Regional Helix'25

17h40 Musical Moment | Eng. Alcínio Miguel Auditorium

18h00 Port of Honour | Auditorium Foyer

Day 3

28 June • Saturday

09h30 Social Programme – Bragança: Walk, Feel, Discover | Meeting Point: Praça da Sé, Bragança

13h30 Free time for lunch

Index

Doctoral Symposium Session	22
The university as an ecosystem: exploring relationships with environment and stakeholders	23
Sustainable Growth in the Stone Sector: Innovation, Internationalization and the “Sustainable Stone by Portugal” agenda	27
Youth entrepreneurship: a bibliometric analysis, collaboration networks and new trends	31
Improving tourism demand forecasting with online data: a literature review	35
Management	39
Institutional work to legitimize digital banks: documentary research of XP Investimentos in Curitiba, Paraná, Brazil	40
Turnover: a survey with professionals from software companies of a technology-based incubator	44
The interrelation between environmental, social, and governance (ESG) and transparency: a bibliometric analysis	48
How may crowdstrike it outage affect tourism firms and destinations?	52
From students to entrepreneurs: the forces that shaped entrepreneurial intentions in higher education institutions	56
Innovation	61
Smart specialisation strategy and its effects on regional innovation: insights from northern Portugal	62
New residents and emerging dynamics: social innovation processes in rural territories	66
Study of the Determinants of Innovation in Portuguese Companies: Application to the Engineering & Tooling Cluster	70
Changing the mindset for circular economy, through its benefits	74
Mapping user needs in the competitive trading card game community	76
Sustainability	79
Enhancing renewable energy utilization through residential peer-to- peer trading	80
Digital Transformation	84
Adoption of wearables: a UTAUT2 perspective	85
Does virtual reality tourism have a future? An application of the PPM framework	89
QualyTools: an online collection of tools for quality management and control	93

Collaboration and Networks	97
Open innovation and co-creation in home care services. A case study for regional inclusive innovation	98
Defining industrial tourism in the cross-border region of Portugal and Spain	102
The reciprocal dynamics of internationalization and quality of life: an institutional and resource-based perspective	106
Empowering entrepreneurship in Ibero-American HEIs: training needs assessment and strategic framework	112
Entrepreneurship	117
Transcultural and adaptive entrepreneurship: social status challenges and fear of failure among Brazilian entrepreneurs in Portugal	118
Albania's role and Western Balkans in green transition: green finance and eu partnership	123
Tourism and Cultural Heritage	127
Enhancing cohesion and long-term competitiveness with circular economy strategies in the hospitality industry. The case of the Costa del Sol tourism ecosystem	128
Trends and thematic insights into educational technologies: a focus on tourism and hospitality education	132

Management



IX Regional

HELIX  25

The interrelation between environmental, social, and governance (ESG) and transparency: a bibliometric analysis

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Abstract

Sustainability has been a central issue in recent decades, leading to the formal integration of the environmental, social and governance (ESG) dimensions by the United Nations in 2004. Although 'CSR', 'sustainability' and 'ESG' are often used interchangeably, ESG provides criteria for assessing sustainability progress. Transparent disclosure of ESG information is crucial to attracting investment and building trust, despite challenges such as gaming and greenwashing. In this context, this paper aims to analyse the evolution of research on ESG and transparency and identify trends. The study reveals an exponential publication growth using a bibliometric analysis of 497 articles from the SCOPUS database between 2011 and 2025. Europe and China lead the way in publications, influenced by EU regulations and international pressures/domestic standards. There is strong collaboration between the US, Europe, and China about academic production.

Keywords: ESG, Transparency, Global trends.

1 INTRODUCTION

Sustainability has emerged as an integral discussion about the future, especially considering that development has been promoting socio-political articulations in pursuit of sustainable growth. Current discussions on sustainability reflect the thinking behind the work of the Club of Rome in 1972, which recognised the reality of the limited availability of natural resources [1].

As the 'environmental crisis' emerged, a contemporary line of thought was taking hold in politics, promoting joint socio-economic development in favour of sustainable development [1]. Since the 1990s, this issue has been a topic of ongoing discussion. In this context, Sachs [2] supported a holistic approach to sustainability that encompasses social, economic, environmental, spatial, and cultural dimensions. This perspective remains relevant today, especially given the increased concerns surrounding climate change and resource consumption.

In this sense, the United Nations Global Compact formally integrated the environmental, social and governance dimensions and introduced the concept of ESG in 2004 [3]. The growing attention paid to 'sustainability' issues has led to a boom in companies' disclosure of information on environmental, social and governance (ESG) practices [4]. In some contexts, such as China, reports previously called Corporate Social Responsibility (CSR) Reports were renamed ESG reports in 2018 [3].

It is important to emphasise that the concepts 'CSR', 'sustainability' and 'ESG' are often used interchangeably [5]. Sustainability can be seen as the long-term goal or the broader vision. At the same time, ESG usually provides the specific criteria and metrics used to assess and report on companies progress towards sustainability [5]. ESG reporting underlines the importance of environmental, social, and governance information transparency. This transparency is argued to be a crucial factor in attracting investment, as noted by Wang [6]. Companies that excel in ESG performance tend to build stronger trust with suppliers and customers, enhancing information transparency, optimising risk management, and strengthening social responsibility [7].

However, challenges remain, as formalising rules to enhance disclosure and transparency can, paradoxically, lead to behavioural issues such as 'gaming' or preferential disclosure, ultimately undermining trust. Transparency based on limited knowledge can create a false sense of being well-informed [8].

Furthermore, a lack of transparency can make it unclear whether genuine ESG (Environmental, Social, and Governance) and CSR (Corporate Social Responsibility) actions are being taken, leading to what is commonly called greenwashing. In such cases, companies may selectively promote their positive initiatives without the real intention of changing their underlying practices. This approach seeks to legitimise corporate actions by masking negative behaviours with positive yet largely symbolic activities and reports, failing to provide clear or substantive evidence. As a result, this diversion can create a misleading impression of a company's true ESG/CSR performance, overshadowing any shortcomings [5].

In this context, this paper aims to analyse the evolution of research on ESG and transparency and identify trends over the years. So, the paper is divided into four sections: after this introduction, the methodology used to characterise the research is presented, followed by the main results and the conclusion.

2 METHODOLOGY

This research employs a bibliometric analysis to explore the relationship between ESG (Environmental, Social, and Governance) factors and transparency. Data was sourced from the SCOPUS database, widely recognised as one of the most comprehensive resources in the scientific community, allowing for a global perspective on the topic under investigation [9]. The initial search utilised the equation 'ESG AND transparency,' with no time limit. This initial search yielded 744 results, considering the article titles, abstracts, and keywords.

The search was subsequently refined to include only articles published in scientific journals, written in English, and categorised within the following subject areas: business, management, and accounting; economics, econometrics, and finance; social sciences; environmental science; decision sciences; and multidisciplinary studies. The final count resulted in 526 articles exported in BibTeX format for further analysis using the bibliometrix software. It is worth noting that during the export process, nine duplicate articles were removed from the dataset, bringing the final total to 497 articles.

3 RESULTS

The data consists of 497 documents published in 249 scientific journals between 2011 and 2025, involving the contribution of 1369 authors, including 57 papers with individual authorship and a percentage of 28.57% international authorship. The average number of citations per document is 27.84. The sample represents 15 years of publications related to ESG and transparency, with an exponential growth in 2024, which, together with the year 2025, represent 60.4 per cent of total publications. Publications from European countries (29.00%) represent a higher percentage than publications from China (21.50%), the country with the most publications.

In the case of China, the high number of publications may be associated with international pressure and global image since, as the world's second largest economy, it is under constant global pressure regarding environmental impact, human rights and corporate transparency. Internal adoption of ESG standards, such as the 'Carbon Neutral by 2060' plan, can stimulate academic production, allowing access to international investors increasingly concerned about the weight of ESG metrics.

At the European level, the increase in publications on ESG and transparency may be linked to the recent EU regulations on mandatory sustainability reporting by companies and corporate due diligence requirements on sustainability.

The relationship between the keywords of the analysed papers is also worth noting. The emphasis is obviously on sustainability, but the authors have also worked on topics such as corporate social responsibility, the governance approach and transparency (Figure 1), highlighting the importance of these topics in the studies.



Figure 1. WordCloud.

It is also noteworthy that the map of country collaboration shows a strong link between three major regions, the USA, Europe and China, where academic production is intense, naturally associated with strong economies, which may indicate that these regions are concerned about ESG issues.

4 CONCLUSIONS

The data analysis revealed a significant increase in scientific production on ESG and transparency, particularly in 2024 and 2025. This underlines the global relevance of ESG issues and the demand for transparency assumed in academic and corporate discussions. The results of the bibliometric analysis also highlight the geographical concentration of research in Europe and China, which have emerged as the main centres of scientific production on this topic, driven by different factors: in the European case, by recent regulations on sustainability reporting and due diligence. In the Chinese case, it was a combination of international pressures, global image concerns and the implementation of internal standards. Analysing the map of collaboration between countries also reveals strong academic links between the main economic regions, such as the USA, Europe and China, reflecting this field's global and interconnected nature.

Although the increase in publications demonstrates the importance of transparency in ESG reporting, the study recognises that significant challenges remain in guaranteeing genuine transparency. Formalising rules to increase disclosure can paradoxically lead to problematic behaviours such as 'gaming' or preferential disclosure. Additionally, the lack of substantive transparency continues to facilitate greenwashing, where companies can selectively promote positive actions without a fundamental change in their underlying practices, creating misleading impressions of ESG performance. These transparency problems influence and make it challenging to assess companies' performance reliably.

In conclusion, the evolution and geographical concentration of research on ESG and transparency confirm that this is a dynamic study area and is essential for sustainable development. However, the results also reaffirm the need to address the persistent challenges related to the quality and authenticity of the information disclosed. Considering the limitation, that was the use of only one database (SCOPUS), future research should continue to explore ways to strengthen transparency and accountability in the ESG context, overcoming current barriers to ensure that increased academic attention translates into truly sustainable and transparent corporate and investment practices. Additionally, incorporating other databases, such as Web of Science, may prove beneficial.

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