Research Trends and Intellectual Structure of Business Impact Analysis: A Bibliometric Perspective

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Article Info

ABSTRACT

This study aims to map the evolution and intellectual structure of Business Impact Analysis (BIA) using a bibliometric approach with VOSviewer. Data were collected from the Scopus database, covering publications related to BIA and its intersection with sustainability, digital transformation, innovation, and artificial intelligence. The bibliometric mapping reveals that research in this area has increasingly shifted from traditional themes such as risk management and financial performance toward broader concerns, including sustainable development, environmental impact, and corporate governance. Keyword co-occurrence analysis highlights "sustainable development," "innovation," and "digital transformation" as central clusters, reflecting the growing integration of BIA into global sustainability and technological agendas. This study contributes to theory by expanding the conceptual boundaries of BIA research and provides practical insights for policymakers, organizations, and practitioners in enhancing resilience and competitiveness. Limitations include reliance on a single database and exclusion of non-indexed literature, suggesting avenues for future research.

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1. INTRODUCTION

Business organizations across the globe are increasingly operating in environments marked by uncertainty, volatility, and complexity [1], [2]. Economic crises, natural disasters, cyberattacks, supply chain disruptions, and public health emergencies like the COVID-19 pandemic have heightened awareness of organizational vulnerabilities. In this context, the ability to anticipate, prepare for, respond to, and recover from disruptive events has become an indispensable element of corporate strategy [2]. One of the core tools in this domain is Business Impact Analysis (BIA), which systematically evaluates the potential consequences of disruption to critical business operations and identifies the resources necessary to ensure continuity. Initially developed as part of broader business continuity planning frameworks, BIA has evolved into a multidisciplinary concept that intersects with fields such as risk management, information systems, crisis communication, and strategic management. Its growing relevance underscores the need to map the intellectual and conceptual landscape of BIA research [3].

The theoretical underpinnings of BIA are grounded in resilience and risk management theories, where the central premise is that organizations must proactively identify mission-critical processes and quantify the impact of their disruption. Scholars and practitioners alike have emphasized that BIA not only informs continuity strategies but also strengthens decision-making by prioritizing functions and resources based on their criticality to business objectives [4], [5]. Over time, the scope of BIA has expanded beyond operational concerns, encompassing dimensions such as supply chain resilience, regulatory compliance, disaster recovery planning, and the integration of advanced technologies such as artificial intelligence and big data analytics. This expansion illustrates the interdisciplinary nature of BIA, making it a subject of interest for a wide array of academic fields [6].

In recent years, the acceleration of digital transformation and the proliferation of cyber threats have significantly reshaped the research and application of BIA. Organizations are increasingly digitized and interconnected, which, while enhancing efficiency and innovation, also exposes them to systemic risks. Consequently, BIA has been applied to cybersecurity preparedness, IT disaster recovery, and cloud computing resilience. Research has also extended into examining the economic, social, and reputational impacts of business disruptions, highlighting the multifaceted nature of risk in modern organizations. The growing body of literature reflects a dynamic and evolving field, but it is fragmented across different disciplines and publication outlets, making it challenging to form a comprehensive understanding of its intellectual structure [7].

At the same time, policymakers, regulators, and professional bodies have also contributed to the development of BIA by embedding it into standards and guidelines for business continuity and disaster recovery. For instance, international standards such as ISO 22317 provide methodological frameworks for conducting BIA, influencing both academic inquiry and professional practice. This convergence of scholarly research and institutional frameworks has created a rich body of knowledge, yet its intellectual evolution has not been systematically mapped. Understanding how the field has developed, what themes dominate the discourse, and where gaps remain is essential for advancing theory and practice in BIA.

Despite its importance, a comprehensive bibliometric analysis of BIA research is largely absent. Bibliometric methods offer powerful tools to uncover trends, influential works, and intellectual structures within a field. Such an approach enables researchers to identify knowledge clusters, research frontiers, and collaboration patterns that may not be visible through traditional literature reviews. By applying bibliometric analysis to BIA, scholars can reveal how the field has evolved over time, what areas have received the most attention, and where future research might be directed. This study, therefore, situates itself at the intersection of business continuity scholarship and scientometric methods, aiming to provide a systematic perspective on the intellectual development of BIA.

Although Business Impact Analysis has emerged as a critical component of organizational resilience and risk management, existing research on BIA is dispersed across multiple disciplines and lacks a unifying overview. Prior studies have often focused on specific domains, such as information systems, disaster recovery, or supply chain management, without integrating insights into a holistic picture of the field. Moreover, while bibliometric approaches have been applied to adjacent topics like business continuity management and risk analysis, BIA itself has not been systematically examined through this lens. As a result, scholars and practitioners face difficulties in identifying core themes, leading contributors, and emerging trends in BIA research. This absence of a comprehensive bibliometric mapping constrains the ability to understand the intellectual structure of the field and limits opportunities for advancing theory and practice. The objective of this

study is to conduct a bibliometric analysis of research on Business Impact Analysis to map its evolution, intellectual structure, and emerging trends.

2. RESEARCH METHODS

This study employed a bibliometric approach to systematically analyze the intellectual landscape and research trends related to Business Impact Analysis (BIA). Bibliometric analysis is particularly suitable for mapping scientific production, identifying influential works, and revealing knowledge structures within a research domain. The method enables a quantitative assessment of publications, citations, co-authorship patterns, and keyword co-occurrence, thereby offering insights into the development and thematic directions of the field. The analytical process was designed to ensure rigor, replicability, and transparency, making it possible to trace how BIA has evolved across time, disciplines, and geographic regions.

The bibliographic data were collected exclusively from the Scopus database, as it is one of the most comprehensive and widely recognized sources of peer-reviewed literature covering journals, conference proceedings, and book chapters. To ensure relevancy, the search strategy employed the keywords "Business Impact Analysis" and its variations, applying them to titles, abstracts, and keywords. The time frame for data collection spanned from the earliest available year to 2025, thereby capturing both foundational works and the most recent contributions. Only documents written in English and classified as articles, reviews, and conference papers were included, while duplicates, non-scholarly documents, and editorial materials were excluded. After applying these criteria, the final dataset was exported in RIS and CSV formats for further processing.

The analysis was conducted using VOSviewer, a widely used bibliometric software that enables visualization of bibliographic networks. Specifically, co-authorship analysis was applied to examine collaboration patterns among authors, and countries; co-citation analysis was used to identify influential works and intellectual foundations of the field; and keyword co-occurrence analysis was conducted to detect thematic clusters and research frontiers.

3. RESULTS AND DISCUSSION
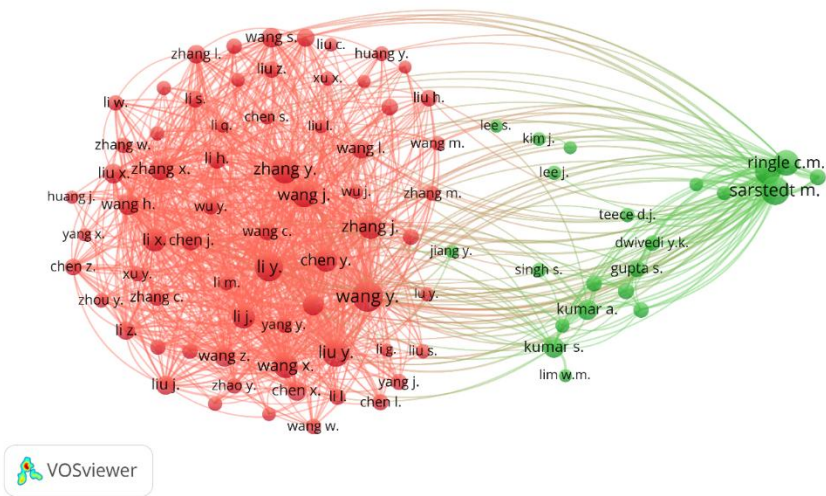
3.1 Co-Authorship Analysis

Figure 1. Author Visualization
Source: Data Analysis

Figure 1 illustrates the co-authorship network in Business Impact Analysis–related research, revealing two dominant clusters of scholarly collaboration. The red cluster is densely populated, consisting primarily of authors with common surnames such as Zhang, Wang, Liu, and Chen, indicating a large group of researchers, likely concentrated in East Asia, who engage in extensive collaboration within their own network. In contrast, the green cluster is more loosely connected but prominently features influential scholars such as Sarstedt M. and Ringle C.M., whose work is often associated with methodological advancements like PLS-SEM in business and management studies. The connecting lines between clusters suggest some degree of cross-collaboration between these groups, although the ties remain relatively limited compared to intra-cluster connections.
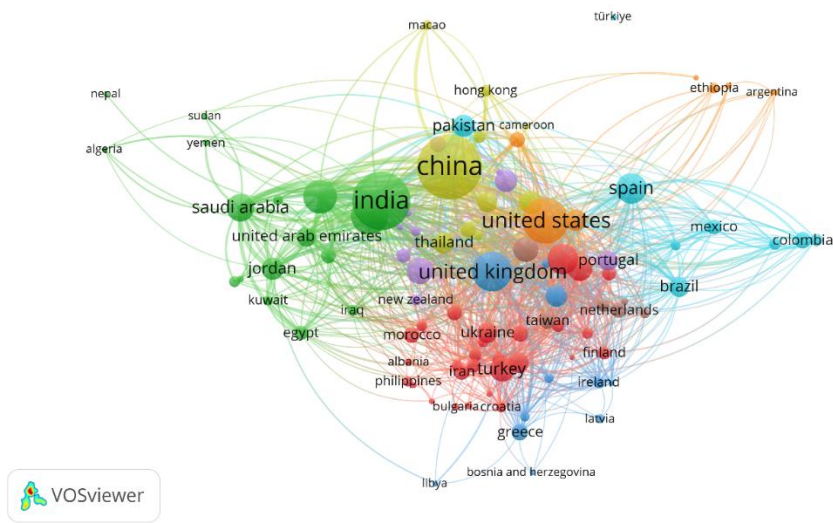

Figure 2. Country Visualization
Source: Data Analysis

Figure 2 presents the country collaboration network in Business Impact Analysis research, highlighting the global distribution of scholarly contributions. The visualization shows several key clusters: China, India, and Saudi Arabia dominate the green cluster, reflecting strong regional collaboration across Asia and the Middle East; the United States and the United Kingdom appear as central hubs, bridging multiple clusters and indicating their pivotal role in fostering international cooperation; meanwhile, European countries such as Spain, Portugal, and the Netherlands form a closely linked network within the blue cluster. The size of the nodes indicates that China, the United States, the United Kingdom, and India are among the most prolific contributors, while the connecting lines reflect robust cross-country partnerships. Smaller nodes, such as Ethiopia, Argentina, and Colombia, demonstrate emerging but less extensive participation, often linked through collaborations with larger research hubs.

3.2 Citation

Table 1. Most Cited Article

Citations	Author and Year	Title
97	[8]	*Does artificial intelligence promote green innovation? An assessment based on direct, indirect, spillover, and heterogeneity effects*
78	[9]	*Geopolitical disruptions in global supply chains: a state-of-the-art literature review*
51	[10]	*A bibliometric review of cryptocurrencies as a financial asset*

Citations	Author and Year	Title
37	[11]	*Research on the driving factors and impact mechanisms of green new quality productive forces in high-tech retail enterprises under China's Dual Carbon Goals*
35	[12]	*Generative AI and human–robot interaction: implications and future agenda for business, society and ethics*
27	[13]	*Navigating paradoxes: building a sustainable strategy for an integrated ESG corporate governance*
25	[14]	*Work from Home During the Pandemic: The Impact of Organizational Factors on the Productivity of Employees in the IT Industry*
25	[15]	*Integrated efficiency and influencing factors analysis of ESG and market performance in thermal power enterprises in China: A hybrid perspective based on parallel DEA and a benchmark model*
22	[16]	*Critical analysis of the impact of artificial intelligence integration with cutting-edge technologies for production systems*
21	[17]	*Industry 5.0 and sustainable manufacturing: a systematic literature review*

Source: Scopus, 2025
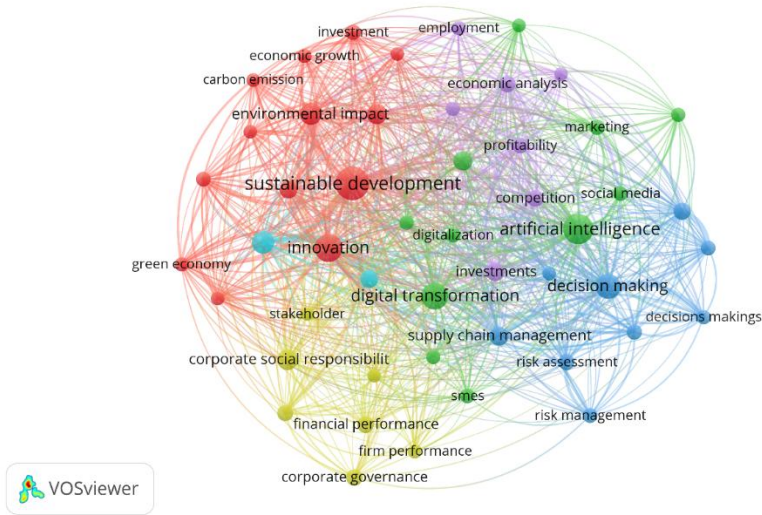
3.3 Keyword Co-Occurrence Analysis

Figure 3. Network Visualization
Source: Data Analysis

Figure 3 illustrates the conceptual structure of research themes related to Business Impact Analysis and its broader academic context. The visualization identifies several clusters of keywords, each representing a thematic focus within the literature. At the center, concepts such as *sustainable development*, *digital transformation*, *artificial intelligence*, *innovation*, and *decision making* appear prominently, suggesting that these topics form the intellectual backbone of the field. The dense connections among these terms highlight the interdisciplinary nature of BIA, which integrates perspectives from sustainability, technology, management, and organizational resilience. The red cluster, dominated by *sustainable development*, *environmental impact*, *carbon emissions*, and *economic growth*, reflects the growing integration of BIA with sustainability and environmental management. This indicates that scholars are increasingly framing BIA not only as a risk and continuity tool but also as a mechanism to align business strategies with global sustainability goals. The frequent association with *green economy* and *corporate social responsibility* further suggests a shift toward embedding

resilience planning within broader corporate responsibility agendas, showing how businesses must anticipate disruptions while simultaneously contributing to long-term ecological balance.

The blue cluster, centered on *decision making*, *risk management*, *risk assessment*, and *supply chain management*, represents the classical focus of BIA as a decision-support mechanism. These terms highlight how BIA research continues to emphasize the identification, evaluation, and prioritization of risks in order to support managerial decision-making processes. The presence of keywords like *SMEs* and *firm performance* in this cluster indicates that the application of BIA has broadened beyond large corporations to include smaller enterprises, which are often more vulnerable to disruptions. This demonstrates that BIA is increasingly recognized as a critical strategic tool across organizational scales. The green and purple clusters, linking terms such as *artificial intelligence*, *digitalization*, *marketing*, *competition*, and *profitability*, reflect the impact of technological transformation on BIA research. The

integration of AI, digital platforms, and data analytics into BIA indicates a methodological and practical evolution in how businesses assess risks and predict disruptions. These clusters highlight the dual role of technology—as both a source of risk (e.g., cyber threats, system failures) and a solution (e.g., predictive analytics, automation). Furthermore, the linkages with *economic analysis* and *employment* suggest that researchers are also exploring the broader socio-economic implications of digital transformation within the BIA framework.

The yellow cluster, encompassing terms like *financial performance*, *corporate governance*, and *stakeholder*, emphasizes the strategic and governance-related dimensions of BIA. This reflects a recognition that business continuity and impact analysis are not solely operational concerns but also central to governance structures, stakeholder trust, and long-term competitiveness. The interplay between governance, accountability, and performance suggests that BIA is increasingly studied in connection with organizational transparency, leadership responsibility, and strategic alignment.
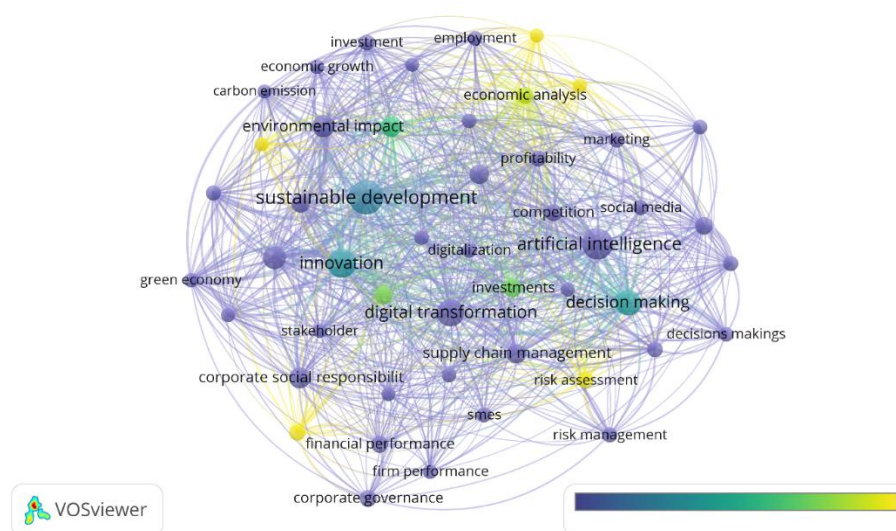

Figure 4. Overlay Visualization
Source: Data Analysis

In this map, the color gradient, from dark blue to yellow, represents the average publication year of keywords,

where blue indicates older research foci and yellow points to more recent themes. Central concepts such as *sustainable*

development, digital transformation, innovation, and *decision making* appear in green, signifying that these themes have consistently attracted attention over the past decade. Their central position and strong interconnectedness suggest that they remain the intellectual core of the field, bridging both earlier and more recent research trajectories. Emerging themes are represented by yellow-colored nodes, which include keywords such as employment, economic analysis, financial performance, and risk assessment. Their more peripheral placement indicates that these topics are gaining traction in recent years, reflecting a shift in scholarly interest toward linking BIA with socio-economic dimensions and organizational performance outcomes. The growing emphasis on employment and economic analysis suggests that researchers are increasingly connecting BIA with labor markets, workforce resilience, and macroeconomic impacts, particularly in the context of global disruptions such as the COVID-19 pandemic. Similarly, the recent attention to risk assessment highlights the evolving methodological sophistication in measuring and mitigating business vulnerabilities. Meanwhile, older research themes clustered in blue, such as *corporate governance, green economy*, and *corporate social responsibility*, represent established areas of inquiry that laid the groundwork for integrating BIA with sustainability and governance perspectives. While these topics remain important, their earlier concentration suggests that scholarly focus has now shifted toward technology-driven and performance-oriented concerns.
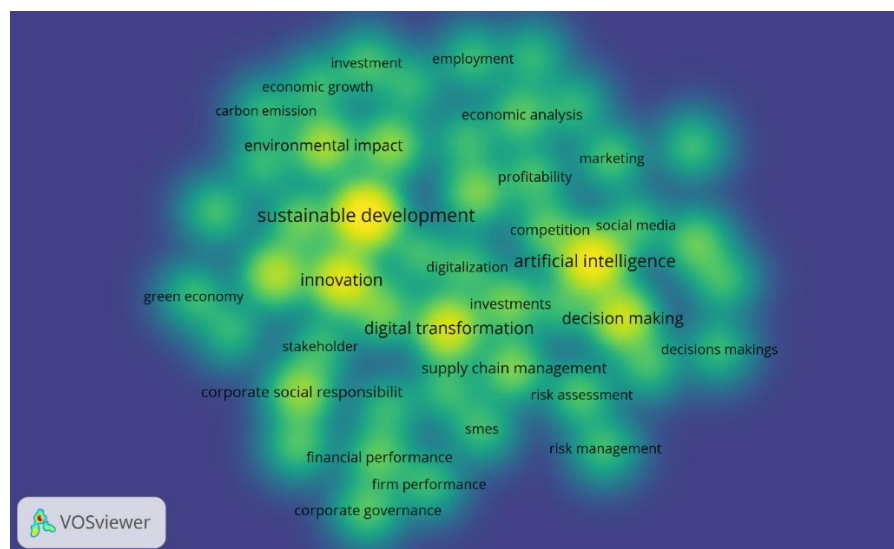

Figure 5. Density Visualization
Source: Data Analysis

Figure 5 illustrates the density of research themes in the Business Impact Analysis domain, with brighter yellow areas representing higher concentrations of scholarly attention. Central themes such as *sustainable development, innovation, digital transformation, artificial intelligence*, and *decision making* stand out as the most frequently studied concepts, indicating their prominence in shaping the intellectual core of the field. Their strong density suggests that researchers consistently focus on how organizations can leverage technological innovation and sustainability strategies to enhance resilience and continuity in the face of disruptions. In contrast, the green and less intense areas, including *corporate governance, SMEs, risk management, employment*, and *economic analysis*, represent secondary but growing areas of inquiry. While these themes are less dominant, their inclusion in the network indicates their relevance in expanding the

scope of BIA research. These emerging focuses highlight a shift toward examining the broader organizational and societal impacts of disruptions, particularly in linking BIA to governance practices, workforce stability, and economic performance.

3.4 Practical Implications

The findings of this bibliometric study provide several practical implications for organizations, policymakers, and practitioners engaged in business continuity and resilience planning. First, the identification of dominant themes such as *sustainable development*, *digital transformation*, and *artificial intelligence* highlights the necessity for organizations to integrate sustainability goals and advanced digital tools into their Business Impact Analysis (BIA) frameworks. This suggests that future BIA practices should move beyond traditional operational continuity and embrace holistic strategies that address environmental, technological, and socio-economic risks. Second, the collaboration patterns across countries and institutions emphasize the importance of global knowledge sharing. Practitioners can benefit from benchmarking strategies developed in leading countries such as China, the United States, and the United Kingdom, adapting these insights to local contexts. Third, the recognition of emerging themes like *risk assessment*, *financial performance*, and *employment* provides organizations with direction for enhancing their BIA by incorporating economic and workforce-related dimensions into their decision-making processes.

3.5 Theoretical Contributions

From a theoretical standpoint, this study contributes to the literature by systematically mapping the intellectual structure of BIA research and situating it within broader discourses of resilience, risk management, and organizational strategy. The bibliometric approach reveals how BIA has evolved from a narrowly operational concept into a multidisciplinary research area that integrates theories of sustainability, digitalization, and governance. By identifying clusters of knowledge and their interconnections, the study provides a conceptual framework for understanding BIA as a nexus between risk-oriented theories (e.g., risk assessment, supply chain resilience) and strategic management perspectives (e.g., innovation, corporate governance). Furthermore, the findings extend theoretical discussions by highlighting the role of technology, particularly artificial intelligence and digital transformation, as both disruptive forces and enablers of organizational resilience. This dual role enriches existing theories of business continuity and offers new avenues for conceptual development in resilience and risk management studies.

3.6 Limitations

Despite its contributions, the study is subject to several limitations that should be acknowledged. First, the data were collected exclusively from the Scopus database, which, although comprehensive, may not fully capture relevant publications indexed in other databases such as Web of Science or IEEE Xplore. This may lead to an incomplete representation of the global research landscape. Second, the bibliometric approach relies on quantitative indicators such as co-authorship, citations, and keyword co-occurrence, which, while useful for identifying patterns, do not capture the nuanced qualitative insights embedded in the literature. Third, the study only includes works published in English, potentially overlooking contributions from non-English sources that may hold significant regional relevance. Lastly, the dynamic nature of research means that the results represent a snapshot in time; emerging themes may continue to evolve, and future analyses may yield different insights. Addressing these limitations in subsequent research through multi-database searches, qualitative content analysis, and

longitudinal approaches would provide a more comprehensive understanding of BIA scholarship.

4. CONCLUSION

This bibliometric study provides a comprehensive overview of the research trends and intellectual structure of Business Impact Analysis (BIA), highlighting its evolution into a multidisciplinary field that intersects sustainability, digital transformation, innovation, and artificial intelligence. The results reveal that while traditional concerns of risk management and organizational resilience remain central, there is a growing emphasis on aligning BIA with broader themes of sustainable development and technological advancement. The mapping of publication patterns, keyword clusters, and collaboration networks underscores the expanding global relevance of BIA and its integration into strategic decision-making processes. By offering both practical and theoretical insights, this study not only advances academic understanding of BIA but also informs practitioners and policymakers on how to adapt their frameworks in response to emerging economic, environmental, and technological challenges.

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