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BUSINESS MODEL INNOVATION: A BIBLIOMETRIC SCIENCE MAPPING ANALYSIS OF RESEARCH EVOLUTION (2000–2025)

İŞ MODELİ İNOVASYONU: ARAŞTIRMA EVRİMİNİN BİBLİYOMETRİK BİLİM HARİTALAMA ANALİZİ (2000–2025)

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ÖZET

İş Modeli İnovasyonu (BMI), stratejik yönetim, inovasyon, girişimcilik, dijital dönüşüm ve sürdürülebilirliği kapsayan disiplinlerarası bir araştırma alanı olarak gelişmiştir. Bununla birlikte, literatür farklı kuramsal gelenekler ve tematik alanlar arasında dağınık bir yapı sergilemekte ve BMI araştırmalarının entelektüel ve kavramsal gelişiminin bütüncül biçimde anlaşılmasını gerektirmektedir. Bu çalışma, 2000–2025 yılları arasında BMI araştırmalarının bütünleşik bir haritasını, Scopus indeksli 2.219 dergi makalesine dayalı bibliyometrik bilim haritalama analiziyle sunmaktadır. Analizde referans ortak-atıf, yazar ortak-atıf, bibliyografik eşleşme, anahtar kelime ortak-oluşum, örtüşme (overlay) görselleştirmesi ve ülke düzeyinde ortak yazarlık analizleri birlikte kullanılmıştır. Bulgular; üç temel entelektüel geleneği, dört aktif araştırma cephesini, çeşitli bir kavramsal yapıyı, Ortalama Yayın Yılları (Average Publication Year, APY) ile ilişkili tematik örüntüleri ve uluslararası işbirliği ağını ortaya koymaktadır. Bu doğrultuda çalışma, BMI araştırmalarını dört tamamlayıcı boyutta bütünleştiren bir yorumlama çerçevesi önermektedir: entelektüel temeller, kavramsal genişleme, bilginin yeniden birleştirilmesi ve uluslararası işbirliği. Çalışma, BMI araştırmalarının kapsamlı bir bibliyometrik sentezini sunmakta ve gelecekteki bibliyometrik ve kuramsal araştırmalar için kuramsal bir zemin oluşturmaktadır.

Anahtar Kelimeler: İş modeli inovasyonu; bibliyometrik analiz; bilim haritalama; ortak-atıf analizi; bibliyografik eşleşme.

ABSTRACT

Business Model Innovation (BMI) has emerged as an interdisciplinary research domain spanning strategic management, innovation, entrepreneurship, digital transformation, and sustainability. However, the literature is distributed across multiple theoretical traditions and thematic domains, highlighting the need for an integrated understanding of its intellectual and conceptual development. This study maps Business Model Innovation (BMI) research between 2000 and 2025 through a bibliometric science mapping analysis of 2,219 Scopus-indexed journal articles. The analysis combines reference co-citation, author co-citation, bibliographic coupling, keyword co-occurrence, overlay visualization, and country co-authorship analyses. The findings identify three major intellectual traditions, four active research fronts, a diverse conceptual structure, thematic patterns associated with earlier and recent Average Publication Years (APY), and an interconnected international collaboration network. Based on these findings, the study proposes an integrated framework synthesizing four complementary dimensions of BMI research: intellectual foundations, conceptual expansion, knowledge recombination, and international collaboration. The study contributes a comprehensive bibliometric synthesis of BMI research and provides a theoretically informed foundation for future bibliometric and theoretical research.

Keywords: Business model innovation; bibliometric analysis; science mapping; co-citation analysis; bibliographic coupling.

1. Introduction

Business Model Innovation (BMI) has become a major interdisciplinary field of research spanning strategic management, innovation studies, entrepreneurship, digital transformation, and sustainability (Massa et al., 2017). This interdisciplinary position is emblematic of the broader development of strategic management research across different theoretical and thematic traditions (Çubukçu, 2018). More generally, innovation has become a core organizational capability for sustaining competitive advantage and enabling economic growth in ever more dynamic business contexts. Organizations face rapid technological, environmental, and competitive changes. To remain competitive, they increasingly need to rethink how they create, deliver, and capture value (Teece, 2010). In this sense, BMI is usually understood as a strategic capacity that allows organizations to adapt and renew their business models over time (Teece, 2018). This study conceptualizes Business Model Innovation (BMI) as substantive changes in the ways organizations create, deliver, and capture value. Over time, the field has incorporated complementary perspectives, including dynamic capabilities, entrepreneurship, organizational transformation, and strategic adaptation. These perspectives have opened up the field of BMI research and have helped in understanding how organizations react to technological and environmental changes (Zott et al., 2011).

More recently, BMI research has moved toward digital transformation, platform ecosystems, servitization, sustainability, circular economy, ecosystem governance, and artificial intelligence (Foss & Saebi, 2018). These developments broaden the conceptual reach of the field to address new organizational and technological challenges, while simultaneously drawing on the field's original conceptual foundations. Recent bibliometric studies have pointed out the usefulness of combining various science-mapping approaches to analyze the intellectual and thematic structures of emerging management fields (Hassak et al., 2026). Similarly, the research on strategic management has shown that science mapping can be utilized to identify intellectual structures, emerging concepts, and research directions (Demir & Orak, 2025). There are several review and bibliometric studies on BMI research, but most of them have focused on specific themes, timeframes, or bibliometric techniques. Hence, the extant studies provide useful, but necessarily incomplete, views of the field.

Table 1

Main Characteristics, Methodological Approaches, and Remaining Gaps of Previous Bibliometric Studies on Business Model Innovation (BMI) Research

Study	Bibliometric Techniques	Main Contribution	Remaining Gap
Zhang et al. (2024)	Citation analysis, reference co-citation analysis, bibliographic coupling analysis, and keyword co-occurrence analysis.	Mapped the intellectual and conceptual structure of BMI research based on 1,032 Scopus-indexed publications (2000–2021), identified emerging research trends, and proposed a theoretical framework and future research agenda.	Does not include author co-citation analysis, APY overlay visualization, or country co-authorship analysis, and its dataset covers publications only through 2021.
Huang & Ichikohji (2023)	Systematic literature review, reference co-citation analysis, keyword co-occurrence analysis, and thematic synthesis.	Integrated bibliometric and qualitative evidence to synthesize major research themes in BMI based on 272 Scopus-indexed documents (2010–2022).	Provides a focused perspective on BMI research, but its 2010–2022 coverage leaves earlier conceptual foundations and developments after 2022 outside its scope.

Jobstreibizer et al. (2025)	Systematic literature review combined with bibliometric analysis, reference co-citation analysis, keyword co-occurrence analysis, and timeline analysis.	Examined the emerging intersection between artificial intelligence and business model innovation using 87 Scopus-indexed articles (2000–2024).	Focuses exclusively on AI-enabled BMI and therefore does not represent the broader field of business model innovation research.
Wu, He, and Chen (2024)	Bibliometric analysis, content analysis, VOSviewer visualization, and the APC framework.	Investigated business model innovation research in Internet firms using an integrated bibliometric and content analysis approach based on 452 Web of Science documents (1999–2022).	Focuses on a specific industrial context and therefore does not provide a field-wide perspective on business model innovation research.
Jorzik et al. (2024)	Systematic literature review, bibliometric analysis, reference co-citation analysis, keyword co-occurrence analysis, and thematic synthesis.	Synthesized AI-driven business model innovation literature and identified emerging research themes using 180 Scopus-indexed articles (2000–2024).	Focuses on a specialized AI-related stream and therefore captures only one segment of the broader business model innovation literature.
Present study	Reference co-citation analysis, author co-citation analysis, bibliographic coupling analysis, keyword co-occurrence analysis, APY overlay visualization, and country co-authorship analysis.	Provides an integrated bibliometric map of BMI research based on 2,219 Scopus-indexed journal articles published between 2000 and 2025. It combines six complementary science-mapping techniques to examine intellectual structures, conceptual patterns, document-level research fronts, thematic recency, and international collaboration.	Extends previous approaches by integrating six complementary bibliometric techniques within a single analytical design and by combining intellectual, conceptual, document-level, thematic, and collaborative evidence within a defined Scopus-indexed corpus.

Source: Authors' elaboration based on the reviewed studies.

Overall, Table 1 shows that previous bibliometric studies have made important contributions to understanding BMI research, yet they differ in temporal coverage, dataset scope, analytical focus, and methodological design. Collectively, these studies demonstrate the value of bibliometric analysis while also indicating the need for a more integrated science-mapping approach capable of combining complementary forms of evidence within a single analytical framework.

Accordingly, the present study integrates six complementary bibliometric science-mapping techniques to examine BMI research published between 2000 and 2025. Specifically, reference co-citation and author co-citation analyses are used to examine intellectual structures; keyword co-occurrence analysis is used to examine the conceptual structure of the field; bibliographic coupling is used to identify document-level research fronts; Average Publication Year (APY) overlay visualization is used to examine the relative recency of thematic prominence; and country co-authorship analysis is used to examine patterns of international collaboration. Together, these analyses provide complementary evidence on the structure and characteristics of BMI research within the defined corpus.

The study addresses the following research questions:

- RQ1. What intellectual foundations have shaped research on business model innovation between 2000 and 2025?
- RQ2. How is the conceptual structure of research on business model innovation organized?

- RQ3. What research fronts are identified through the bibliographic coupling network of research on business model innovation?
- RQ4. Which thematic patterns are associated with earlier and more recent Average Publication Years (APY) in research on business model innovation?
- RQ5. What country-level co-authorship patterns characterize research on business model innovation?

The findings generated by these analyses are subsequently synthesized through four interpretive dimensions—intellectual foundations, conceptual expansion, knowledge recombination, and international collaboration. These dimensions provide a concise framework for organizing the complementary bibliometric evidence and are further specified in the methodology section.

The remainder of the paper proceeds as follows. Section 2 presents the theoretical background and establishes the conceptual basis for the study. Section 3 describes the research design, dataset, bibliometric procedures, and interpretive framework. Section 4 reports the empirical findings. Section 5 discusses the findings through the four interpretive dimensions and considers their theoretical implications. Finally, Section 6 concludes the study by summarizing the main contributions, managerial implications, limitations, and directions for future research.

2. Theoretical Background

This section develops the conceptual foundation for understanding Business Model Innovation (BMI) research as an evolving interdisciplinary field and provides a basis for interpreting its intellectual, conceptual, thematic, and collaborative structures.

2.1 Business Model Innovation as an Evolving Research Field

The evolution of BMI research has been cumulative rather than linear. Early studies established the conceptual foundations of the field by defining business models as systems of interrelated activities that organize value creation and value capture (Baden-Fuller & Morgan, 2010). As the literature matured, additional perspectives—including dynamic capabilities, entrepreneurship, organizational learning, and strategic adaptation—broadened its intellectual scope and strengthened its relevance for understanding organizational change (Demil & Lecocq, 2010; Teece, 2007).

Recent research has expanded the scope of BMI to encompass digital transformation, platform ecosystems, servitization, sustainability, the circular economy, ecosystem governance, and artificial intelligence (Foss & Saebi, 2018; Zare & Persaud, 2025). These developments build on the field's original theoretical foundations while enabling BMI research to address emerging organizational and technological challenges. This growing literature provides the basis for exploring the intellectual, conceptual, thematic, and collaborative structures of the BMI literature through bibliometric science mapping.

2.2 Development of Scientific Knowledge and Bibliometric Science Mapping

As research fields mature, scientific knowledge develops through the accumulation, connection, and recombination of ideas. Understanding the development of an interdisciplinary field therefore requires looking beyond publication growth to the

intellectual, conceptual, and collaborative structures that shape how knowledge is organized and developed. Bibliometric science mapping provides a useful approach for examining these structures. By analyzing citation relationships, conceptual links, and collaboration networks in the scientific literature, it can help identify the intellectual foundations, conceptual structure, research fronts, thematic patterns, and collaborative organization of a research field (Zupic & Čater, 2015).

Unlike conventional narrative or systematic literature reviews, which mainly synthesize findings from individual studies, bibliometric science mapping focuses on how scientific knowledge is structured and connected, providing an empirical basis for examining the development of research fields (Van Eck & Waltman, 2010).

2.3 Interpretive Framework

Building on the preceding discussion, this study adopts a multidimensional interpretive framework to synthesize the evidence generated by the bibliometric science-mapping analyses. The framework brings together four complementary dimensions—intellectual foundations, conceptual expansion, knowledge recombination, and international collaboration.

These dimensions are used as interpretive lenses for organizing the empirical findings rather than as sequential stages of scientific development or explanatory mechanisms. Their operational definitions, corresponding bibliometric techniques, and interpretive boundaries are specified in the Methodology section.

3. Methodology

This study adopts an integrated bibliometric science mapping approach to examine the development and structure of Business Model Innovation (BMI) research between 2000 and 2025. The methodology combines complementary bibliometric techniques to examine the intellectual foundations, conceptual structure, document-level research fronts, thematic recency, and international collaboration patterns within the defined research corpus.

3.1 Research Design

This study uses an integrated bibliometric science mapping approach to examine patterns in Business Model Innovation (BMI) research between 2000 and 2025. Rather than relying on a single bibliometric technique, the research design combines six complementary analyses to capture different aspects of the structure and development of the field.

Bibliometric science mapping is appropriate for this purpose because it allows relationships within the scientific literature to be examined through citation patterns, conceptual associations, and collaboration networks. In contrast to conventional literature reviews, which primarily synthesize the findings of individual studies, bibliometric science mapping focuses on the structural relationships among publications, references, concepts, authors, and countries (Van Eck & Waltman, 2010). This approach is particularly useful for examining a research field that has developed across multiple theoretical and thematic areas.

The six bibliometric techniques were selected to provide complementary forms of evidence on the intellectual, conceptual, document-level, thematic, and collaborative characteristics of BMI research. The specific analytical purposes and procedures associated with each technique are described in Section 3.4.

The research design comprised four main stages. First, bibliographic records were retrieved from the Scopus database using predefined search terms and eligibility criteria. Second, the retrieved records were screened, and the bibliographic metadata were checked and standardized. Third, the six bibliometric analyses were conducted using VOSviewer (version 1.6.20). Finally, the findings from the complementary analyses were synthesized through the interpretive framework described below. This design allows the study to examine different dimensions of BMI research while maintaining a consistent analytical basis across the six techniques.

3.2 Dataset and Search Strategy

The search strategy was designed to retrieve publications addressing business model innovation and closely related terminology used in the literature. To improve retrieval coverage while maintaining relevance to the focal topic, the search combined the core term “business model innovation” with related expressions, including “business-model innovation,” “business model design,” “business model transformation,” “business model reconfiguration,” and “innovative business model.” The broader expression “business model” was intentionally excluded because it could retrieve a large number of publications that do not specifically address business model innovation.

The complete Scopus search query was as follows:

Scopus search query:

TITLE-ABS-KEY ("business model innovation" OR "business-model innovation" OR "business model design" OR "business model transformation" OR "business model reconfiguration" OR "innovative business model") AND PUBYEAR > 1999 AND PUBYEAR < 2026 AND (LIMIT-TO(SRCTYPE, "j")) AND (LIMIT-TO(PUBSTAGE, "final")) AND (LIMIT-TO(DOCTYPE,"ar")) AND (LIMIT-TO(SUBJAREA,"BUSI")) AND (LIMIT-TO(LANGUAGE,"English"))

The inclusion of these related terms reflects their conceptual overlap with BMI while maintaining a distinction between the focal construct and related terminology. Business model design generally concerns the configuration or purposeful development of a business model, whereas BMI emphasizes substantive changes in how organizations create, deliver, and capture value. The processes through which existing business models can transform are also referred to as business model transformation and reconfiguration. Although these processes may overlap with BMI, they are not treated as synonymous with the focal construct in this study. The term “innovative business model” was also included to capture studies addressing novel approaches to value creation, delivery, and capture. Accordingly, these terms were included to broaden retrieval coverage while retaining BMI as the central focus of the analysis.

To improve the consistency and comparability of the dataset, the analysis was restricted to final-version, English-language journal articles indexed in the Business, Management, and Accounting (BUSI) subject area of Scopus. This restriction was adopted to construct a relatively homogeneous corpus centered on the management literature in which BMI has been extensively studied. Conference papers, book chapters, reviews, editorials, notes, publications in press, and records indexed exclusively under other subject areas were therefore excluded.

The search identified 2,219 final-version journal articles published between 2000 and 2025. These publications constitute the empirical basis of all subsequent bibliometric analyses. The dataset therefore represents the English-language, Scopus-indexed journal literature within the Business, Management, and Accounting subject area rather than the entire body of interdisciplinary BMI scholarship.

The complete dataset identification, filtering, eligibility, and selection procedure is presented in Figure 1, which documents the construction of the final analytical corpus and supports the transparency and reproducibility of the study.

3.3 Data Screening and Selection

Figure 1 presents the dataset construction procedure, including the identification, filtering, eligibility assessment, and final selection of publications included in the analysis. This workflow documents the procedures used to construct the final analytical corpus.

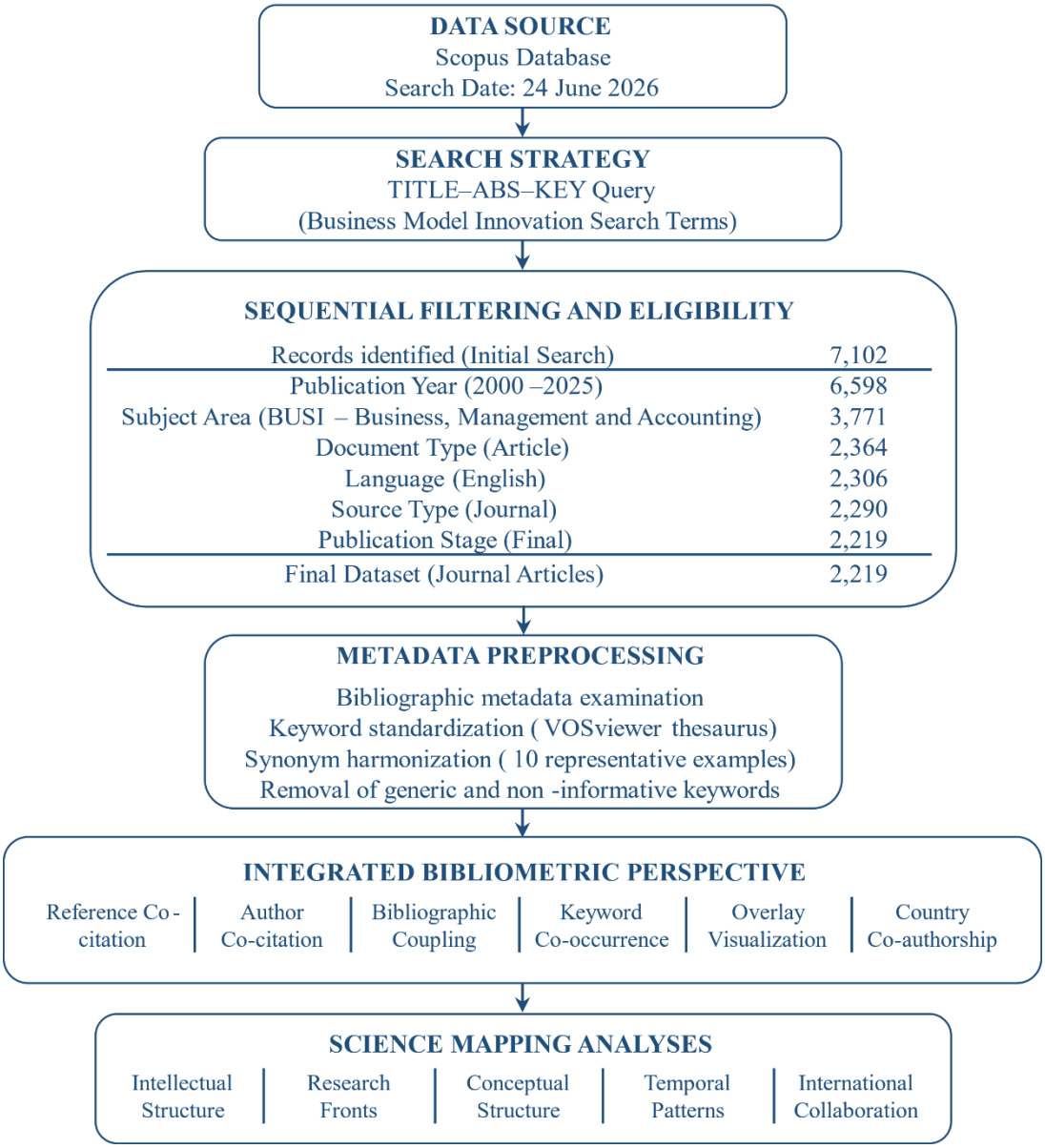
The first stage involved identifying publications through the predefined search strategy in the Scopus database, followed by filtering according to the eligibility criteria. Only final-version English-language journal articles indexed in the Business, Management, and Accounting (BUSI) subject area were retained. Conference papers, book chapters, reviews, editorials, notes, publications in press, and records indexed exclusively under other subject areas were excluded.

The bibliographic metadata were then examined for completeness and consistency across author names, publication years, source titles, citation information, and author keywords. Author keywords were standardized using a VOSviewer thesaurus file developed through manual inspection. Synonymous expressions, spelling variants, abbreviations, and singular and plural forms were harmonized, while generic and non-informative keywords were excluded. These procedures were applied to reduce conceptual fragmentation and improve the clarity and comparability of the resulting networks.

Following the screening and preprocessing procedures, the final dataset comprised 2,219 journal articles, which served as the common empirical basis for all subsequent bibliometric analyses.

Figure 1

Research Workflow of the Bibliometric Science Mapping Study



Source: Authors' elaboration.

3.4 Bibliometric Procedures

Six complementary bibliometric techniques were applied to examine different structural characteristics of BMI research. First, reference co-citation analysis was conducted to identify influential publications and the intellectual foundations of BMI research. This technique examines how frequently cited references are cited together within the literature and therefore helps identify publications that have been jointly recognized as important knowledge bases.

Second, author co-citation analysis complemented the reference-level analysis by identifying influential scholars and broader intellectual traditions within the field. By examining patterns of authors being cited together, this analysis provides an additional perspective on the scholarly foundations that have shaped BMI research. Third, bibliographic coupling analysis was used to identify document-level research fronts. The unit of analysis was the individual document. We included documents that received at least

320 citations, resulting in a network of 73 documents. Because bibliographic coupling links publications through shared references, the resulting clusters are interpreted as research fronts based on overlapping knowledge bases rather than as representations of the historical intellectual foundations of the field (Zupic & Čater, 2015).

Fourth, keyword co-occurrence analysis was used to examine the conceptual structure of BMI research. This analysis identifies relationships among frequently occurring author keywords and helps reveal the main concepts and thematic groupings represented in the literature. Fifth, Average Publication Year (APY) overlay visualization was applied to complement the keyword co-occurrence analysis. APY indicates whether keywords within the network are associated with relatively earlier or more recent publication periods. In this study, APY is therefore interpreted as a descriptive indicator of thematic recency, rather than as evidence of longitudinal thematic change or a direct measure of how themes have changed over time (Van Eck & Waltman, 2010).

Sixth, country co-authorship analysis was conducted to examine patterns of international scholarly collaboration. The analysis identifies collaborative relationships among countries and provides evidence on the international structure of BMI research. It is therefore interpreted as a measure of collaboration connectivity rather than as a direct measure of knowledge diffusion or knowledge transfer (Donthu et al., 2021). Taken together, these six techniques provide complementary empirical evidence on the intellectual, conceptual, document-level, thematic, and collaborative characteristics of BMI research. The interpretive framework described in the following subsection subsequently synthesizes the findings generated by these analyses.

3.5 Interpretive Framework

To organize and interpret the evidence generated by the six bibliometric analyses, this study adopts four complementary interpretive dimensions: intellectual foundations, conceptual expansion, knowledge recombination, and international collaboration. These dimensions serve as analytical lenses for bringing together different forms of bibliometric evidence. They are not intended to represent causal mechanisms, sequential stages, or fixed stages of scientific development.

- Intellectual foundations refer to the theoretical and scholarly traditions that have shaped BMI research. This dimension is examined primarily through citation and co-citation analyses to identify influential publications, researchers, and ideas that have contributed to the development of the field. It therefore captures the knowledge structures that have informed subsequent research on BMI.

- Conceptual expansion concerns the broadening and diversification of concepts and themes associated with BMI research. This dimension is examined through keyword co-occurrence analysis, complemented by Average Publication Year (APY) overlay visualization. Keyword co-occurrence identifies the conceptual structure of the field, while APY provides information on the relative recency of thematic prominence. Accordingly, APY is interpreted as a descriptive indicator of thematic recency rather than as evidence of longitudinal thematic change.

- Knowledge recombination refers to the identification of document-level research fronts through shared reference bases. This dimension is examined through bibliographic coupling

analysis, which groups publications according to the references they have in common. The resulting clusters are interpreted as research fronts that draw on overlapping knowledge bases. Accordingly, knowledge recombination is used here as an interpretive characterization of shared knowledge bases rather than as a direct measure of knowledge integration or recombination.

- International collaboration concerns patterns of scholarly collaboration across countries. This dimension is examined through country co-authorship analysis, which identifies collaborative relationships among countries and provides evidence of the international structure of BMI research. The analysis therefore reflects collaboration connectivity rather than direct knowledge diffusion or knowledge transfer.

Taken together, these four dimensions provide a structured framework for integrating evidence from the complementary bibliometric analyses. They offer distinct but related perspectives on the intellectual, conceptual, document-level, thematic, and collaborative characteristics of BMI research.

3.6 Software and Analytical Parameters

All bibliometric analyses were conducted using VOSviewer (version 1.6.20), a widely used software package for constructing and visualizing bibliometric networks. VOSviewer was chosen because it supports citation, co-citation, bibliographic coupling, keyword co-occurrence, overlay visualization, and co-authorship analyses within a consistent analytical framework (Van Eck & Waltman, 2010).

All networks were constructed using full counting with association strength normalization. Full counting assigns equal weight to each occurrence or relationship, while association strength normalization adjusts link weights according to the relative frequency of co-occurrence. This approach is widely used in bibliometric science mapping and facilitates comparison with previous BMI research (Van Eck & Waltman, 2010).

For the country co-authorship analysis, full counting means that a publication involving multiple countries contributes equally to each participating country. Consequently, countries involved in highly collaborative publications may receive greater visibility than under fractional counting. The resulting network is therefore interpreted as representing country-level collaboration rather than proportional national research output.

Minimum inclusion thresholds were set separately for each bibliometric technique to reduce noise from infrequently occurring items while maintaining adequate dataset coverage. The thresholds were determined through iterative examination of the resulting networks, considering the balance between interpretability and coverage. The specific settings for each analysis are reported in Table 2.

Unless otherwise specified, default VOSviewer settings were retained for network visualization and clustering. No manual adjustments were made to the resulting layouts or clustering solutions. Cluster labels were assigned by examining the highest-weighted items and representative references, authors, documents, keywords, or countries within each cluster. These labels are therefore descriptive interpretations of the dominant characteristics of each cluster rather than categories generated directly by the software.

Table 2 presents the analytical parameters for each network, including the unit of analysis,

inclusion threshold, number of selected items, number of resulting clusters, counting method, and normalization technique. Reporting these settings increases methodological transparency, improves reproducibility, and facilitates comparison with future bibliometric science mapping studies using similar procedures (Donthu et al., 2021).

Table 2

Methodological Parameters Used for Bibliometric Network Construction

Analysis	Unit of Analysis	Inclusion Threshold	Items Selected	Clusters	Counting Method	Normalization
Reference co-citation analysis	Cited references	Minimum 34 citations	105	3	Full counting	Association strength
Author co-citation analysis	Authors	Minimum 125 citations	68	3		
Bibliographic coupling analysis	Documents	Minimum 320 citations per document	73	4		
Keyword co-occurrence analysis	Author keywords	Minimum 13 occurrences	72	9		
Overlay visualization (APY)	Author keywords	Minimum 13 occurrences	72	9		
Country co-authorship analysis	Countries	Minimum 18 documents	36	4		

Source: Authors' elaboration based on VOSviewer (version 1.6.20).

4. Results

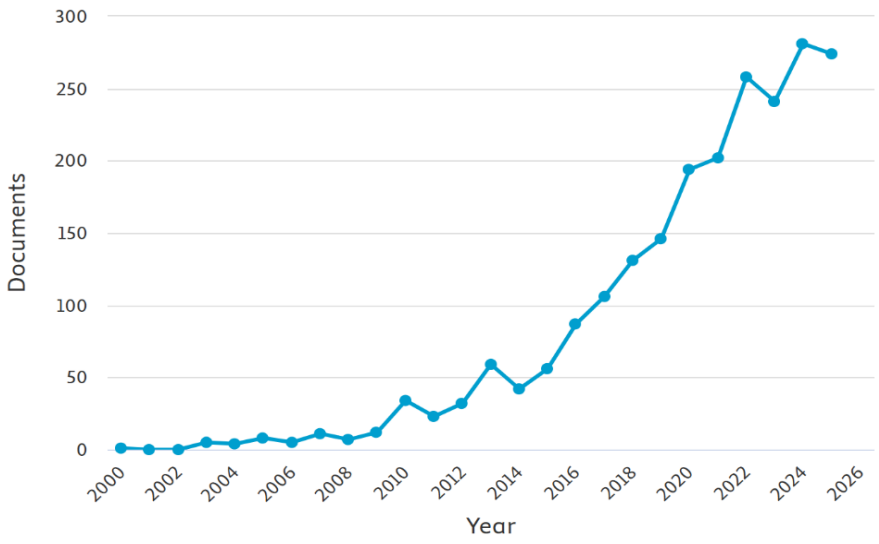
This section presents the findings of the bibliometric science mapping analysis of Business Model Innovation (BMI) research between 2000 and 2025. The results are organized into six complementary analyses covering publication output, intellectual structure, research fronts, thematic patterns, and international collaboration.

4.1 Evolution of the Research Field

The annual publication trend shows a sustained increase in Business Model Innovation (BMI) research, with particularly strong growth during the last decade.

Figure 2

Annual Scientific Production in BMI Research (2000–2025)



Source: Authors' elaboration based on the Scopus dataset.

The publication trajectory can be broadly characterized by three periods: an emerging stage (2000–2009), a period of steady growth (2010–2015), and a period of rapid expansion (2016–2025). Publication output increased substantially during the latter period, reaching its highest level in 2024, with 281 articles, followed by 274 articles in 2025.

Table 3

Annual Distribution of Publications in BMI Research (2000–2025)

Year	Documents
2000	1
2001	0
2002	0
2003	5
2004	4
2005	8
2006	5
2007	11
2008	7
2009	12
2010	34
2011	23
2012	32
2013	59
2014	42
2015	56
2016	87
2017	106
2018	131
2019	146
2020	194
2021	202
2022	258
2023	241
2024	281
2025	274
Total	2,219

Source: Authors' elaboration based on the Scopus dataset.

Overall, the publication trajectory indicates a substantial expansion of scholarly attention to BMI over the study period, particularly from the mid-2010s onward.

4.2 Intellectual Structure of Business Model Innovation Research

To examine the intellectual structure of BMI research, a reference co-citation analysis was conducted. A minimum citation threshold of 34 citations per cited reference was applied, resulting in a network of 105 cited references.

Table 4

Highest-Ranked References in the Reference Co-Citation Network (Ranked by Total Link Strength)

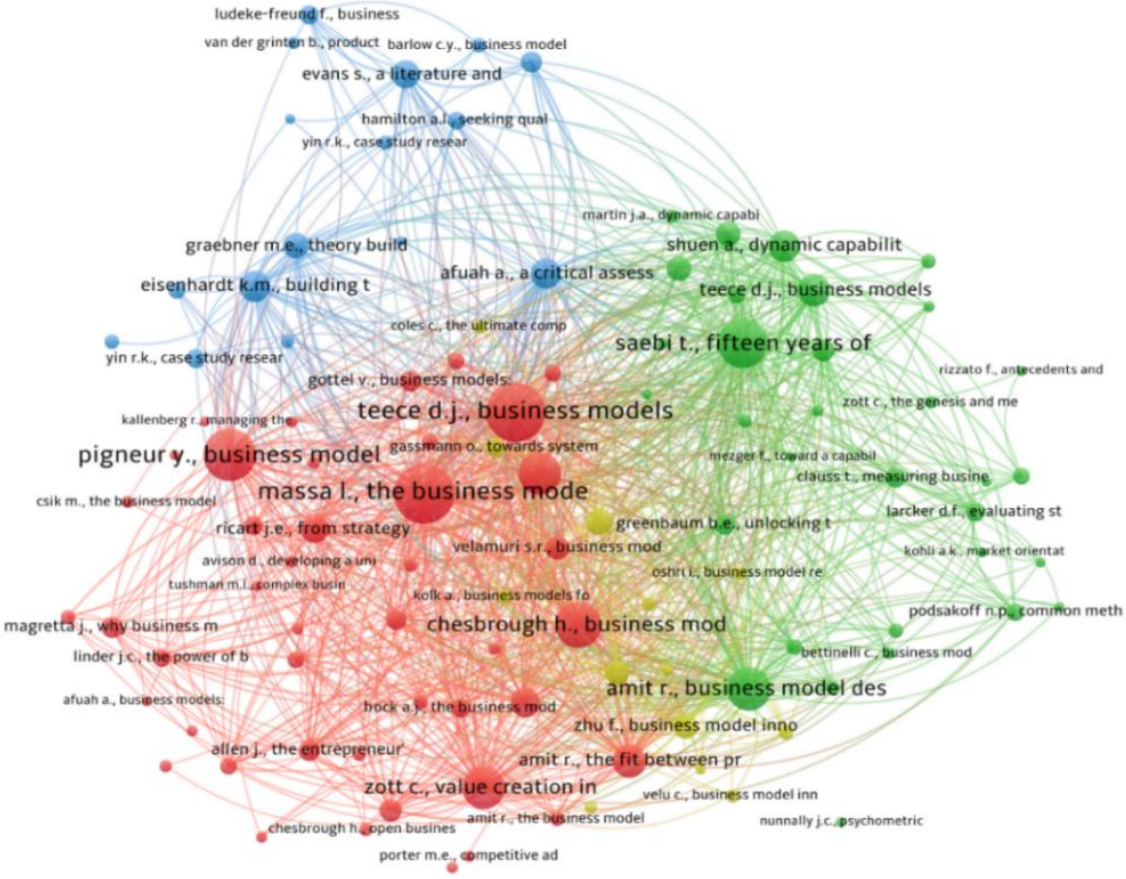
Rank	Cited References	Citations	TLS
1	Massa, L., Tucci, C. L., & Afuah, A. (2017). A critical assessment of business model research. *Academy of Management Annals*, *11*(1), 73–104. https://doi.org/10.5465/annals.2014.0072	358	3722
2	Teece, D. J. (2010). Business models, business strategy, and innovation. *Long-range planning*, *43*(2-3), 172–194. https://doi.org/10.1016/j.lrp.2009.07.003	351	3647
3	Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: how far have we come, and where should we go?. *Journal of Management*, *43*(1), 200–227. https://doi.org/10.1177/0149206316675927	274	2809
4	Chesbrough, H. (2010). Business model innovation: opportunities and barriers. *Long Range Planning*, *43*(2-3), 354–363. https://doi.org/10.1016/j.lrp.2009.07.010	245	2704
5	Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic management journal*, *22*(6-7), 493–520. https://doi.org/10.1002/smj.187	226	2568
6	Zott, C., & Amit, R. (2007). Business model design and the performance of entrepreneurial firms. *Organization science*, *18*(2), 181–199. https://doi.org/10.1287/orsc.1060.0232	219	2470
7	Zott, C., & Amit, R. (2010). Business model design: An activity system perspective. *Long Range Planning*, *43*(2-3), 216–226. https://doi.org/10.1016/j.lrp.2009.07.004	218	2343
8	Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: A handbook for visionaries, game changers, and challengers*. John Wiley & Sons.	300	2045
9	Zott, C., & Amit, R. (2008). The fit between product market strategy and business model: Implications for firm performance. *Strategic management journal*, *29*(1), 1–26. https://doi.org/10.1002/smj.642	161	1927
10	Demil, B., & Lecocq, X. (2010). Business model evolution: in search of dynamic consistency. *Long-range planning*, *43*(2-3), 227–246. https://doi.org/10.1016/j.lrp.2010.02.004	131	1710

Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).
Note: Total Link Strength (TLS) represents the total strength of a reference's co-citation links with other references in the network. References are ranked by TLS.

The references with the strongest Total Link Strength represent key contributions to business model research, strategic management and innovation, business model design, value creation, and business model evolution. Massa, Tucci, and Afuah (2017) and Teece (2010) rank highest in terms of total link strength, followed by Foss and Saebi (2017), Chesbrough (2010), and Amit and Zott (2001). Collectively, these works highlight the close connections among business model theory, strategic management, and innovation research within the BMI literature.

Figure 3

Reference Co-Citation Network of Business Model Innovation Research



Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

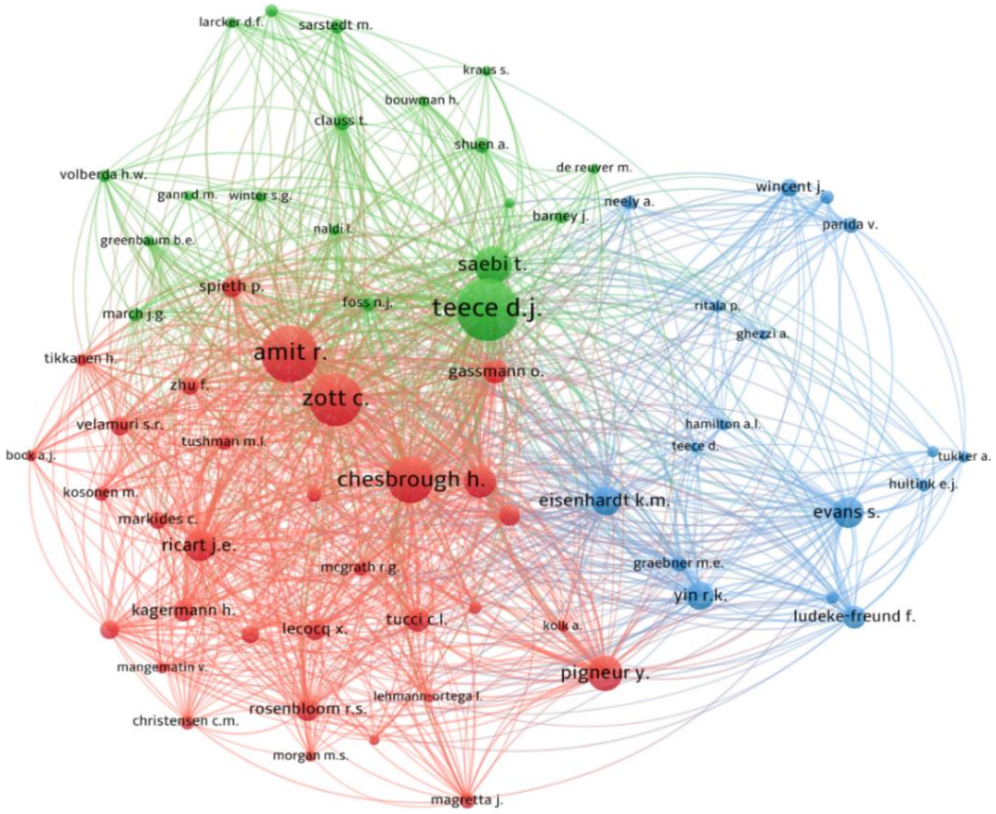
The reference co-citation network comprises three complementary clusters. The first centers on business model design and value creation, the second on dynamic capabilities and strategic adaptation, and the third on entrepreneurship and innovation. The clustering therefore reflects the coexistence of these perspectives within the intellectual structure of BMI research. These patterns correspond to the intellectual-foundations dimension of the interpretive framework.

4.3 Author Co-Citation Structure

Author co-citation analysis was conducted to identify the principal scholarly communities represented in BMI research. The minimum citation threshold was set at 125 citations, resulting in a network comprising 68 authors.

Figure 4

Author Co-Citation Network Of Business Model Innovation Research



Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

The author co-citation network identifies three closely connected scholarly communities associated with business model theory, dynamic capabilities and strategic management, and innovation-oriented perspectives on business model development. Compared with reference co-citation analysis, which emphasizes influential publications, author co-citation highlights the scholars whose work is repeatedly connected through the citation patterns of BMI publications.

The strongest author-level links are concentrated around Teece, Amit, Zott, Chesbrough, Saebi, Ricart, Massa, Pigneur, Eisenhardt, and Tucci. Their network positions emphasize the significance of business models, strategic management, and innovation scholarship for the intellectual structure of the field.

Table 5

Highest-Ranked Authors in the Author Co-Citation Network (Ranked by Total Link Strength)

Rank	Author	Citations	TLS
1	Teece, D. J.	1509	23802
2	Amit, R.	1324	22146
3	Zott, C.	1188	20340
4	Chesbrough, H.	998	15552
5	Saebi, T.	751	13061
6	Ricart, J. E.	585	11834
7	Massa, L.	611	10225
8	Pigneur, Y.	686	8953
9	Eisenhardt, K. M.	526	8314
10	Tucci, C. L.	408	7524

Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

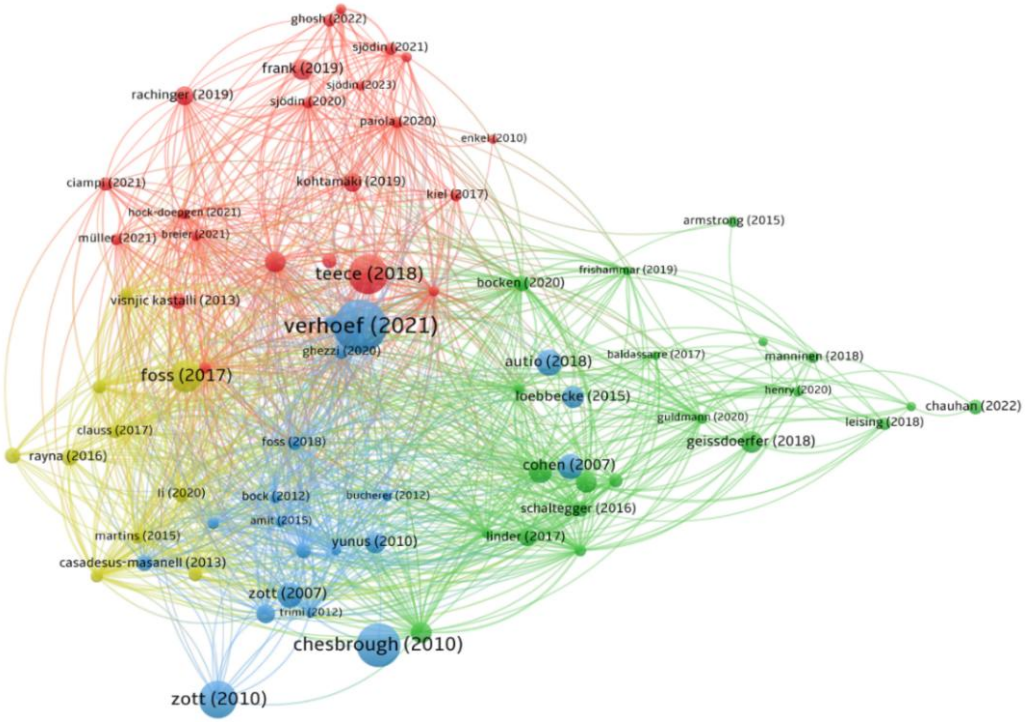
Taken together, the author-level network reinforces the structure identified through reference co-citation and provides a complementary view of the scholarly communities connected to BMI research.

4.4 Contemporary Research Fronts in BMI: A Bibliographic Coupling Analysis

To identify the principal research fronts represented in contemporary Business Model Innovation (BMI) scholarship, a bibliographic coupling analysis was conducted at the document level. A minimum citation threshold of 320 citations per document was applied, resulting in a network comprising 73 highly cited documents organized into four interconnected clusters.

Figure 5

Bibliographic Coupling Network of Business Model Innovation Research



Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

The selected bibliographic coupling network identifies four research fronts within the analyzed corpus: (1) digital servitization and industrial digital transformation, (2) sustainable and circular business models, (3) business model design and strategic innovation, and (4) business model innovation capabilities and emerging digital technologies. Together, these clusters indicate the thematic diversification of BMI research across digitalization, sustainability, strategic design, organizational capabilities, and emerging technologies.

Table 6

Major Research Fronts Identified Through Bibliographic Coupling Analysis

Cluster	Research Front	Representative Documents (Author, Year)	Basis for Cluster Label	Main Research Themes
1	Digital Servitization and Industrial Digital Transformation	Ancillai (2023); Visnjic (2016); Kohtamäki (2019); Paiola (2020); Sjödin (2020)	Dominated by studies examining digital servitization, industrial digitalization, and digitally enabled value creation	Digital servitization, industrial digital transformation, ecosystem orchestration, digital capabilities, value creation
2	Sustainable and Circular Business Models	Bocken (2013); Evans (2017); Geissdoerfer (2018); Schaltegger (2016); Joyce (2016)	Centered on sustainability-oriented business models and circular economy research	Sustainable business models, circular economy, sustainable value creation, and environmental sustainability
3	Business Model Design and Strategic Innovation	Zott and Amit (2010); Chesbrough (2010); Casadesus-Masanell (2010); Foss (2018); Ghezzi (2020)	Focused on business model design, strategic innovation, and organizational renewal	Business model design, strategic innovation, competitive advantage, organizational transformation
4	Business Model Innovation Capabilities and Emerging Digital Technologies	Clauss (2017); Spieth (2014); Kraus (2022); Li (2020); Martins (2015)	Emphasizes organizational capabilities supporting business model innovation and emerging digital technologies	Innovation capabilities, organizational capabilities, artificial intelligence, digital technologies, business model transformation

Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

Cluster 1 focuses on digital servitization and industrial digital transformation, with studies exploring digitally enabled value creation, ecosystem orchestration, and digital capabilities. Cluster 2 centers on sustainable and circular business models, with particular attention to sustainability, circular economy principles, and environmental value creation. Cluster 3 brings together research on business model design, strategic innovation, competitive advantage, and organizational transformation. Cluster 4 highlights the organizational capabilities that support BMI, along with the growing role of emerging digital technologies such as artificial intelligence.

Taken together, the four clusters capture distinct but interconnected research fronts in the BMI literature. Their shared-reference structures indicate bibliographic relatedness among contemporary research fronts, without establishing direct knowledge integration or causal relationships.

4.5 Conceptual Structure of BMI Research: A Keyword Co-Occurrence Analysis

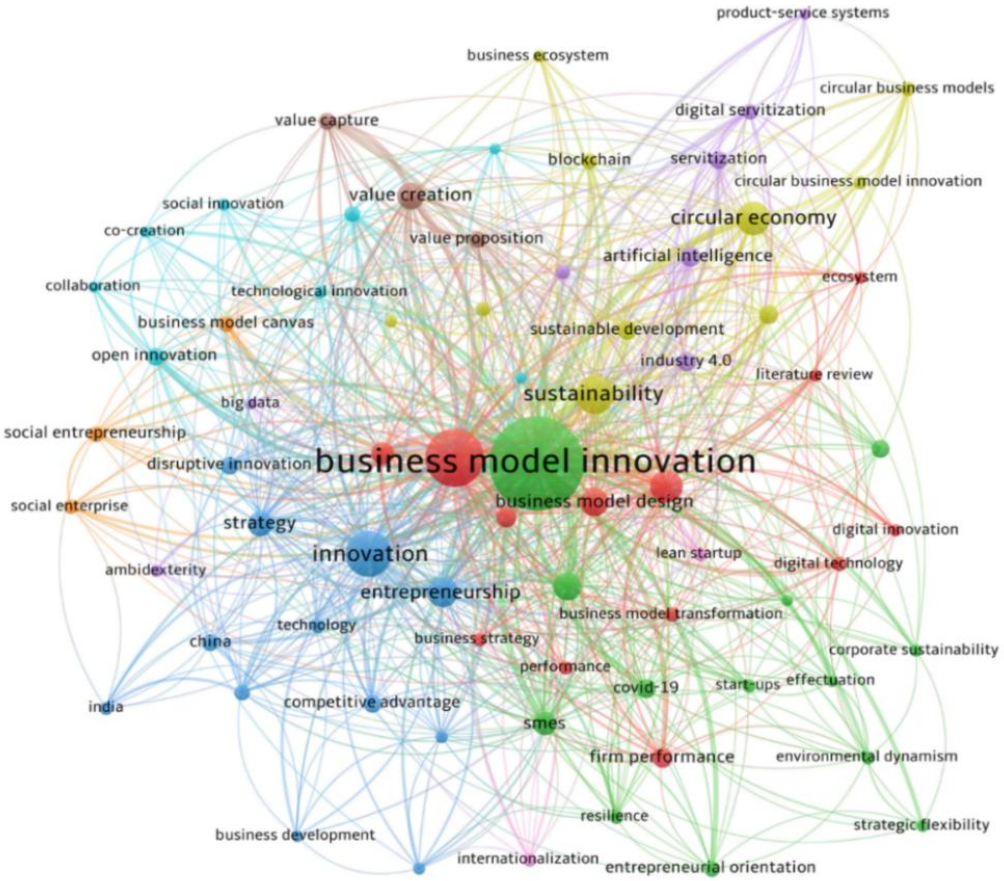
To examine the conceptual structure of Business Model Innovation (BMI) research, a keyword co-occurrence analysis was performed using author keywords. A minimum occurrence threshold of 13 was applied, resulting in a network comprising 72 author keywords.

The keyword co-occurrence network contains nine closely connected clusters. The core query terms (*business model innovation*, *business model*, and *innovation*) occupy central positions, as expected given their direct relationship to the search strategy. The remaining clusters focus on various research topics, including (1) business model design and digital transformation, (2) capabilities for business model innovation and sustainability, (3) strategy, entrepreneurship, and competitive development, (4) circular economy and

sustainable ecosystems, (5) digital servitization and intelligent technologies, (6) open and collaborative innovation, (7) social entrepreneurship, (8) value creation mechanisms, and (9) internationalization and lean startup.

Figure 6

Keyword Co-Occurrence Network of BMI Research



Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

Figure 6 shows the relationships among the nine thematic clusters and the central position of BMI-related concepts within the network. Beyond the core query terms, the network includes sustainability, circular economy, digital transformation, servitization, ecosystem perspectives, artificial intelligence, collaborative innovation, entrepreneurship, and value creation. The distribution of these themes indicates a broad conceptual structure extending beyond the traditional business model and innovation concepts.

Table 7

Highest-Ranked Author Keywords in the Keyword Co-Occurrence Network (Ranked by Total Link Strength)

Rank	Keyword	Occurrences	TLS
1	Business Model Innovation	883	1162
2	Business Model	337	531
3	Innovation	211	378
4	Sustainability	144	298
5	Circular Economy	114	224
6	Digital Transformation	107	217
7	Entrepreneurship	93	193
8	Value Creation	69	171
9	Dynamic Capabilities	80	167
10	Strategy	62	142

Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

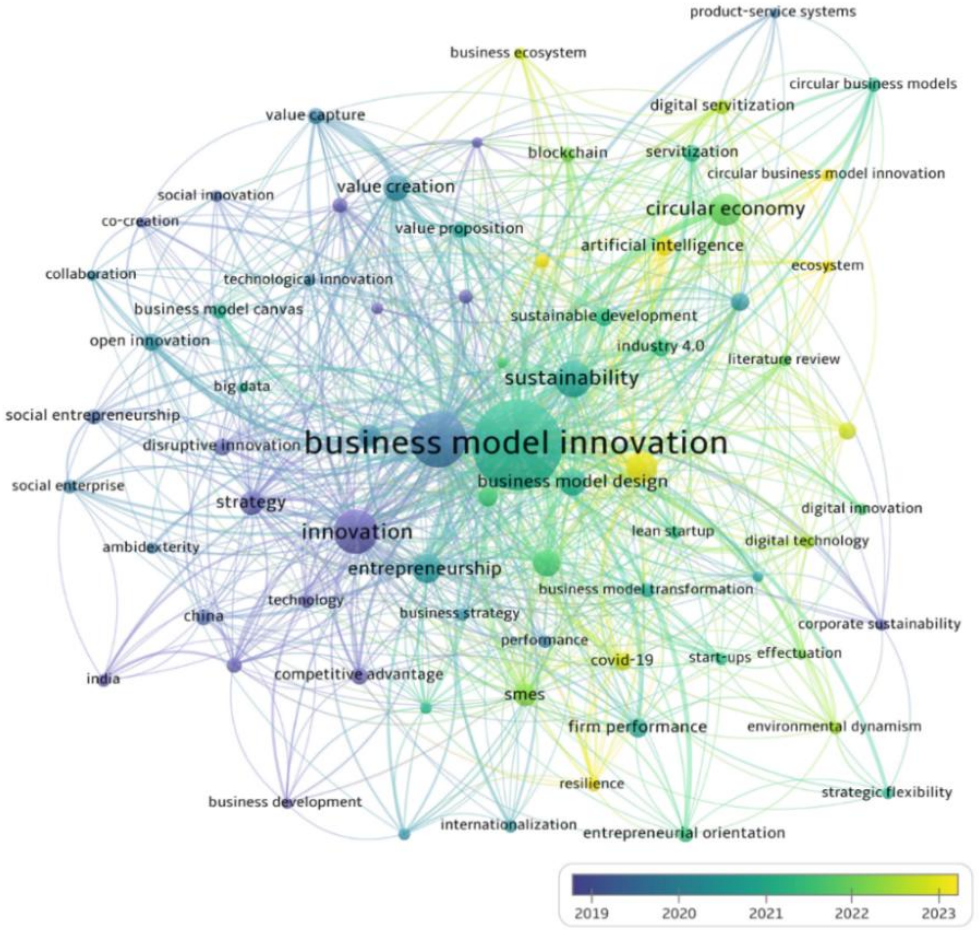
The top keywords, apart from the core query terms—business model innovation, business model, and innovation—include sustainability, circular economy, digital transformation, entrepreneurship, value creation, dynamic capabilities, and strategy. Their occurrence and link-strength patterns highlight the prominence of these topics within the conceptual structure of BMI research. These patterns also reflect the broadening range of concepts addressed in BMI research.

4.6 Thematic Recency in BMI Research: Overlay Visualization

To examine the relative recency of themes in BMI research, an overlay visualization was generated based on the keyword co-occurrence network, comprising 72 author keywords that met the minimum occurrence threshold of 13. In this visualization, color indicates the Average Publication Year (APY) of each keyword, providing a descriptive measure of the relative recency of the publications associated with that keyword.

Figure 7

Overlay Visualization of the Keyword Co-Occurrence Network



Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

The overlay visualization indicates relatively earlier APY values for themes such as business models, value creation, strategy, and innovation, whereas sustainability, circular economy, digital transformation, servitization, ecosystems, and artificial intelligence are associated with relatively more recent APY values. These patterns provide a descriptive indication of thematic recency within the analyzed corpus rather than a direct measure of longitudinal thematic change.

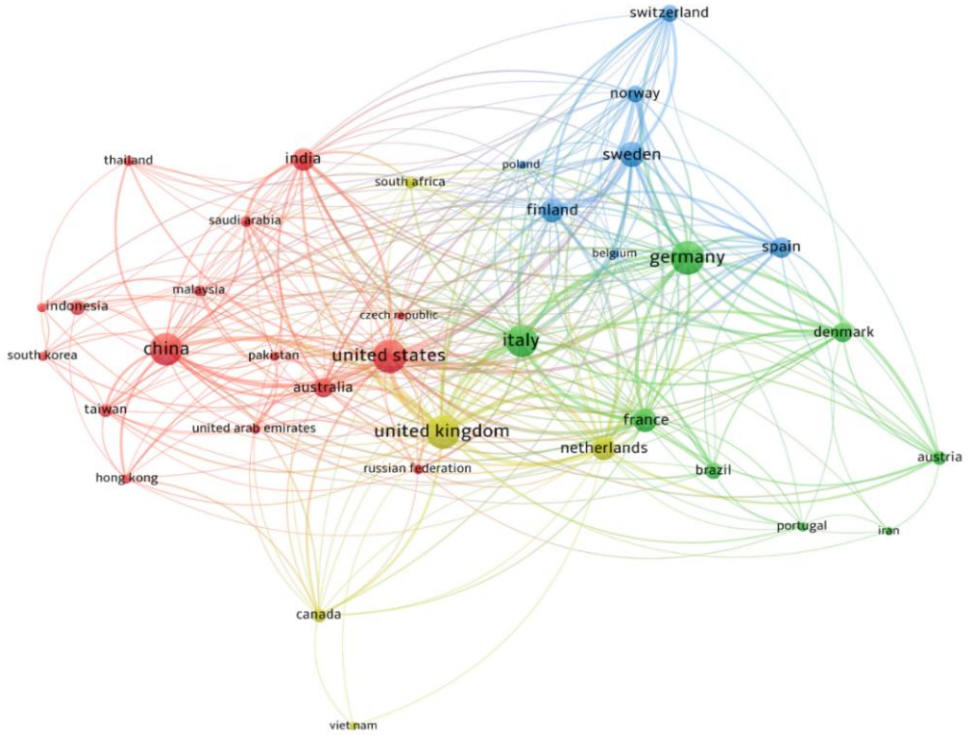
The APY patterns highlight the relative recency of sustainability- and technology-oriented themes within the analyzed corpus.

4.7 International Collaboration in BMI Research: A Country Co-Authorship Analysis

To examine international collaboration in Business Model Innovation (BMI) research, a country co-authorship analysis was conducted. The minimum threshold was set at 18 documents per country, resulting in a collaboration network comprising 36 countries.

Figure 8

International Collaboration Network in Business Model Innovation Research



Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

The international collaboration network comprises four regionally anchored communities connecting countries across Europe, North America, and the Asia-Pacific region. The network reflects cross-national co-authorship relationships among countries contributing to BMI research.

Table 8

Leading Countries in the Business Model Innovation Country Co-Authorship Network

Rank	Country	Documents	Citations	TLS
1	Germany	274	21499	201
2	United Kingdom	270	24798	281
3	United States	267	31724	223
4	China	263	7851	148
5	Italy	244	18169	177
6	Sweden	155	15908	158
7	France	135	14737	139
8	Netherlands	132	18409	150
9	Finland	127	13459	155
10	India	125	3775	89

Source: Authors' elaboration based on the Scopus dataset using VOSviewer (version 1.6.20).

Among the countries included in the network, the United Kingdom records the highest Total Link Strength (TLS), followed by the United States, Germany, Italy, and China in the

displayed network measures. Germany, the United Kingdom, and the United States also record high publication and citation counts, while China combines a high publication count with a lower citation count than the other countries among the top five. These differences illustrate variation in publication output, citation impact, and collaboration connectivity across national research systems.

The country co-authorship patterns reveal international collaboration among the countries represented in the network. However, co-authorship captures collaboration connectivity rather than direct knowledge diffusion or transfer.

5. Discussion

This section interprets the integrated bibliometric findings by examining the patterns identified across the intellectual, conceptual, thematic, and collaborative structures of Business Model Innovation (BMI) research.

5.1 The Theoretical Basis of Business Model Innovation Research

Reference and author co-citation analyses provide complementary views of the intellectual structure of Business Model Innovation (BMI) research. Reference co-citation identifies influential publications that support the field (Fig. 3; Table 4), whereas author co-citation identifies scholarly communities connected through recurring citation relationships (Fig. 4; Table 5).

Co-citation analysis of references reveals three closely related intellectual traditions. The first is about business model design and value creation and is grounded in the works of Amit and Zott (2001, 2010), Osterwalder and Pigneur (2010), and Baden-Fuller and Morgan (2010), who conceptualize business models in terms of value creation and capture. The second concerns dynamic capabilities and strategic adaptation, in particular the work of Teece (2007, 2010, 2018) and Demil and Lecocq (2010), which highlights the adaptation and evolution of business models in changing environments. The third view combines entrepreneurship and innovation as demonstrated by Chesbrough (2010), Foss and Saebi (2017, 2018), and Massa et al. (2017). These contributions extend the discussion to innovation, organizational transformation, and the rise of business model innovation as a distinct area of research.

The author co-citation results provide a complementary view of these intellectual connections. Authors such as Teece, Amit, Zott, Chesbrough, Saebi, Ricart, Massa, Pigneur, Eisenhardt, and Tucci occupy prominent network positions. These authors' relationships demonstrate the significance of business model theory, strategic management, dynamic capabilities, and innovation perspectives in the BMI body of research. As a network, it implies a significant intellectual overlap between these traditions, not isolated theoretical streams.

This pattern is consistent with earlier reviews that describe BMI as a field that uses a range of theoretical perspectives, including strategic management, innovation, entrepreneurship, and business model research (Foss & Saebi, 2018). To summarize, the co-citation findings show that the intellectual structure of BMI is rooted in earlier business model concepts but also reaches out to wider strategic and innovation perspectives.

5.2 Conceptual Expansion of Business Model Innovation Research

The keyword co-occurrence and Average Publication Year (APY) analyses provide complementary evidence on the thematic structure and relative recency of BMI research. The keyword network identifies the concepts that are most strongly connected within the analyzed corpus (Figure 6; Table 7), while the APY overlay provides information on the relative publication recency associated with these themes (Figure 7).

The keyword network, beyond the core query terms “business model innovation," “business model," and "innovation," points to the importance of sustainability, digital transformation, circular economy, entrepreneurship, value creation, and dynamic capabilities. These themes indicate that BMI research extends beyond foundational discussions of business model design toward issues involving technological transformation, sustainability, organizational capabilities, and alternative forms of value creation.

The APY overlay is another indication of the relative newness of these themes. The average publication years are relatively early for business model design, value creation, strategy and innovation, and relatively late for sustainability, circular economy, digital transformation, servitization, ecosystems, and artificial intelligence. These patterns show the increasing interest in digitalization, sustainability transitions, platform ecosystems, and emerging technologies in the BMI literature (Geissdoerfer et al., 2017; Nambisan, 2017).

Importantly, APY results should be interpreted as measures of thematic recency rather than longitudinal change. The observed pattern complements the keyword network by showing that well-established BMI themes coexist with topics associated with more recent publication activity. This finding is consistent with previous review studies highlighting the diversification of BMI research across areas such as digital transformation, sustainability, and other emerging fields (Huang & Ichikohji, 2023; Zhang et al., 2024).

5.3 Knowledge Recombination Around Emerging Research Fronts

The bibliographic coupling analysis provides a complementary perspective on the contemporary research fronts of BMI by identifying documents that share common reference bases (Figure 5; Table 6). Four research fronts were identified: business model design and strategic innovation, sustainable and circular business models, digital servitization and industrial digital transformation, and business model innovation capabilities and emerging digital technologies.

These research fronts represent different thematic concentrations in the analyzed corpus, but they are linked by common bases of references. The results indicate an overlap to different degrees between the literature on sustainability, digitalization, servitization, strategic design, and organizational capabilities. This pattern is consistent with prior research suggesting the diffusion of BMI into areas like sustainability, digital transformation, servitization, and digitally enabled business models (Foss & Saebi, 2017, 2018; Zhang et al., 2024). Artificial intelligence is not a separate bibliographic cluster but part of the larger emerging digital technologies research front. Its association with digital transformation, organizational capabilities, and business model transformation shows that AI-related BMI research is linked to established streams of digital and strategic research. This finding aligns with recent reviews highlighting AI as a growing context for business model innovation (Jorzik et al., 2024; Jobstreibizer et al., 2025).

The shared-reference structure provides the empirical basis for interpreting these connections in terms of knowledge recombination. However, bibliographic coupling measures bibliographic relatedness rather than actual knowledge integration. The results therefore indicate overlapping research bases among contemporary fronts without establishing direct knowledge transfer, causal interaction, or substantive recombination between them.

5.4 International Collaboration and the Integrative Interpretive Framework

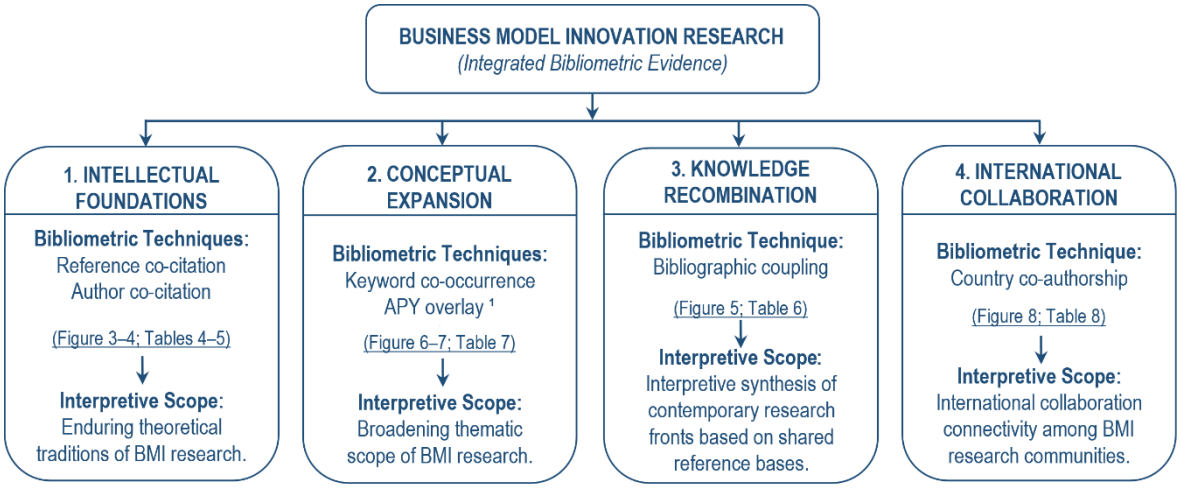
Taken together, the six bibliometric analyses provide complementary evidence across four analytical dimensions. Reference and author co-citation analyses illuminate the intellectual foundations of the field; keyword co-occurrence and APY provide evidence on its conceptual structure and thematic recency; bibliographic coupling identifies contemporary research fronts through shared reference bases; and country co-authorship captures the international collaborative structure of BMI research.

The country co-authorship analysis indicates an internationally connected research community spanning Europe, North America, and the Asia-Pacific region. Among the ten countries reported in Table 8, the United Kingdom has the highest Total Link Strength (TLS), followed by the United States, Germany, Italy, and China. Together, these results point to a strong pattern of international collaboration in BMI research. However, country co-authorship reflects collaboration connectivity rather than direct knowledge diffusion or knowledge transfer. Accordingly, the observed network should be interpreted as evidence of international research collaboration rather than as a direct measure of knowledge circulation.

As illustrated in Figure 9, the Integrative Interpretive Framework synthesizes these complementary findings into four analytical dimensions: intellectual foundations, conceptual expansion, knowledge recombination, and international collaboration. The framework brings together evidence from the six bibliometric analyses while preserving the methodological boundaries of each technique. In particular, co-citation identifies intellectual connections, keyword co-occurrence captures conceptual associations, APY indicates relative thematic recency, bibliographic coupling identifies shared-reference structures, and country co-authorship captures collaboration connectivity. The four dimensions are therefore treated as complementary analytical perspectives rather than sequential stages or causal mechanisms. The framework provides an integrative synthesis of the empirical patterns identified across the BMI research corpus rather than a direct representation of causal development, knowledge diffusion, or longitudinal scientific evolution.

Figure 9

Integrative Interpretive Framework of Business Model Innovation (BMI) Research



Source: Authors' synthesis based on the integrated bibliometric science mapping results.
Note: This framework is interpretive rather than causal. The four dimensions synthesize evidence from complementary bibliometric analyses and should not be interpreted as sequential stages or causal mechanisms.
[1] APY overlay refers to the Average Publication Year of keywords to indicate relative thematic recency.

6. Conclusion

This study provides an integrated bibliometric science mapping of Business Model Innovation (BMI) research based on 2,219 Scopus-indexed journal articles published between 2000 and 2025. By combining reference co-citation, author co-citation, bibliographic coupling, keyword co-occurrence, Average Publication Year (APY) overlay visualization, and country co-authorship analyses, the study offers complementary perspectives on the intellectual, conceptual, thematic, document-level, and collaborative characteristics of the defined BMI corpus.

The findings provide an integrated view of how BMI research has developed across its intellectual foundations, conceptual patterns, research fronts, thematic areas, and international collaboration structures. Rather than representing separate stages of development, these aspects provide complementary perspectives on the structure of the BMI literature and are interpreted within the methodological boundaries of the respective bibliometric techniques.

From a managerial perspective, the findings indicate that business model innovation is increasingly associated with technological transformation, sustainability, digital servitization, the circular economy, and emerging technologies. The growing prominence of digital transformation and artificial intelligence in the analyzed corpus points to the increasing role of technological developments in shaping and renewing business models. At the same time, the rising attention to sustainability and the circular economy suggests that environmental and broader societal considerations are becoming more closely integrated with economic value creation. These patterns indicate that managerial attention to BMI extends beyond incremental product or process innovation toward the alignment of technology, organizational capabilities, value creation, and sustainability.

From a theoretical perspective, the study makes three principal contributions. First, it integrates six complementary bibliometric science mapping techniques within a single analytical design, providing a multidimensional mapping of BMI research. Second, it

synthesizes evidence on the intellectual, conceptual, thematic, and collaborative characteristics of the field through complementary bibliometric analyses. Third, it provides an integrative interpretive framework that brings together these findings while maintaining the methodological boundaries of the underlying techniques.

The findings also provide directions for future BMI research. The research fronts and thematic patterns identified in this study show that sustainability, digital transformation, servitization, platform ecosystems, and artificial intelligence continue to attract scholarly interest, alongside other emerging topics. Future research might investigate these areas through systematic literature reviews, theory-building research, empirical studies, or comparative bibliometric analyses that complement the structural evidence produced by science mapping.

Several limitations should be acknowledged. First, the analysis is limited to English-language journal articles indexed in Scopus and classified within the Business, Management, and Accounting subject area. This scope was deliberately selected to maintain a focused and consistent bibliographic corpus. Nevertheless, the exclusion of other databases, such as Web of Science, and adjacent subject areas, particularly engineering and computer science, may have affected the representation and relative visibility of technology-intensive themes such as artificial intelligence and digital transformation.

Second, the findings depend on the search query and selection criteria. The query was designed to identify research on business model innovation within the selected corpus; therefore, the findings should not be interpreted as representing the entire body of business model research. Third, methodological decisions concerning inclusion thresholds, full counting, metadata standardization, author-name disambiguation, keyword harmonization, and network parameters may influence bibliometric network structures. Alternative parameter settings may produce somewhat different peripheral structures or cluster compositions.

Fourth, the interpretation of cluster labels involves a degree of analytical judgment based on the dominant characteristics of the items within each network. Finally, the bibliometric techniques themselves impose interpretive boundaries. Country co-authorship reflects collaboration connectivity rather than direct knowledge diffusion; APY overlay indicates thematic recency rather than longitudinal thematic change; and bibliographic coupling identifies document-level research fronts through shared reference bases rather than directly measuring knowledge integration or recombination. These considerations define the scope within which the findings should be interpreted.

Future research may extend this work by integrating multiple bibliographic databases, examining specific industries or geographical contexts, applying alternative counting methods or network parameters, and combining bibliometric science mapping with systematic literature reviews, qualitative evidence synthesis, or mixed-method research designs. Such approaches could provide complementary perspectives on the organization, development, and theoretical foundations of BMI research.

Overall, this study provides a structured bibliometric account of research on business model innovation within the selected Scopus corpus. By bringing together evidence from complementary bibliometric analyses, the study clarifies major intellectual foundations,

conceptual patterns, document-level research fronts, thematic areas, and international collaboration structures. The resulting synthesis provides a basis for further bibliometric, theoretical, and empirical research while recognizing the methodological boundaries of science mapping.

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Genişletilmiş Özet

Amaç ve Kapsam

Bu çalışma, İş Modeli İnovasyonu (Business Model Innovation—BMI) alanındaki bilimsel literatürün entelektüel, kavramsal, tematik ve işbirlikçi yapısını bütüncül bir bibliyometrik bilim haritalama yaklaşımıyla incelemeyi amaçlamaktadır. Çalışmada, BMI araştırmalarının hangi entelektüel temeller üzerinde şekillendiği, kavramsal kapsamının hangi temalar etrafında genişlediği, güncel araştırma cephelerinin hangi alanlarda yoğunlaştığı ve uluslararası araştırma işbirliklerinin nasıl yapılandığı ortaya konulmaktadır. Bu doğrultuda, farklı bibliyometrik tekniklerden elde edilen bulgular tek bir analitik çerçevede birleştirilerek BMI literatürünün mevcut yapısına ilişkin bütüncül bir değerlendirme sunulmaktadır.

Yöntem

Araştırma, 2000–2025 yılları arasında yayımlanan ve Scopus veri tabanında indekslenen 2.219 dergi makalesinden oluşan belirlenmiş bir veri kümesine dayanmaktadır. Veri kümesi, Business, Management and Accounting konu alanında sınıflandırılan İngilizce yayınlarla sınırlandırılmıştır. Bibliyometrik analizler VOSviewer 1.6.20 kullanılarak gerçekleştirilmiştir. BMI literatürünün farklı boyutlarını incelemek amacıyla altı tamamlayıcı bilim haritalama tekniğinden yararlanılmıştır: referans ortak atıf analizi, yazar ortak atıf analizi, doküman düzeyinde bibliyografik eşleştirme, anahtar kelime ortak oluşum analizi, Ortalama Yayın Yılı (Average Publication Year—APY) örtüşüm görselleştirmesi ve ülke ortak yazarlık analizi.

Referans ortak atıf analizi alanın entelektüel temellerini; yazar ortak atıf analizi başlıca akademik toplulukları belirlemek amacıyla kullanılmıştır. Güncel araştırma cephelerini belirlemek üzere doküman düzeyinde bibliyografik eşleştirme uygulanmış ve doküman başına en az 320 atıf ölçütü sonucunda 73 yüksek atıflı dokümandan oluşan bir ağ elde edilmiştir. Kavramsal yapı, en az 13 oluşum eşiği kullanılarak 72 yazar anahtar kelimesi üzerinden incelenmiştir. APY örtüşüm görselleştirmesi, temaların göreli güncelliğini betimlemek amacıyla kullanılmıştır. Uluslararası işbirliği ise ülke ortak yazarlık analiziyle incelenmiş ve ülke başına en az 18 doküman eşiği kullanılarak 36 ülkeden oluşan bir ağ oluşturulmuştur.

Bulgular

Referans ve yazar ortak atıf analizleri, BMI araştırmalarının üç temel ve birbirini tamamlayan entelektüel geleneğin kesişiminde şekillendiğini göstermektedir. İlk gelenek, Amit ve Zott, Osterwalder ve Pigneur ile Baden-Fuller ve Morgan'ın çalışmalarında görülen iş modeli tasarımı ve değer yaratma perspektifidir. İkinci gelenek, özellikle Teece ile Demil ve Lecocq tarafından temsil edilen dinamik yetenekler ve stratejik uyum yaklaşımıdır. Üçüncü gelenek ise Chesbrough, Foss ve Saebi ile Massa ve çalışma arkadaşlarının katkıları üzerinden girişimcilik, inovasyon ve örgütsel dönüşüm perspektiflerini BMI araştırmasına dahil etmektedir. Yazar ortak atıf ağında Teece, Amit, Zott, Chesbrough, Saebi, Ricart, Massa, Pigneur, Eisenhardt, Tucci, Gassmann ve Evans en yüksek toplam bağlantı gücüne sahip yazarlar arasında yer almaktadır. Bu sonuçlar, BMI araştırmasının tek bir teorik gelenekle sınırlı olmadığını; stratejik yönetim, iş modeli teorisi, inovasyon ve örgütsel dönüşüm perspektiflerinin birbirleriyle bağlantılı biçimde kullanıldığını ortaya koymaktadır.

Bibliyografik eşleştirme analizi, çağdaş BMI araştırmasında dört araştırma cephesini ortaya çıkarmıştır. Birinci cephe dijital hizmetleştirme ve endüstriyel dijital dönüşüm üzerine yoğunlaşmakta; dijital hizmetleştirme, endüstriyel dijitalleşme, ekosistem orkestrasyonu, dijital yetenekler ve dijital olarak desteklenen değer yaratma konularını kapsamaktadır. İkinci cephe sürdürülebilir ve döngüsel iş modellerini ele almakta ve sürdürülebilir iş modelleri, döngüsel ekonomi, sürdürülebilir değer yaratma ve çevresel sürdürülebilirlik temalarını bir araya getirmektedir. Üçüncü cephe iş modeli tasarımı ve stratejik inovasyon ile ilgilenmekte; rekabet avantajı ve örgütsel dönüşüm gibi konulara odaklanmaktadır. Dördüncü cephe ise BMI yetenekleri ve gelişmekte olan dijital teknolojiler üzerinde yoğunlaşmakta; inovasyon yetenekleri, örgütsel yetenekler, yapay zekâ, dijital teknolojiler ve iş modeli dönüşümünü kapsamaktadır. Bu yapı, BMI araştırmasının stratejik temellerini korurken dijitalleşme, sürdürülebilirlik ve yetenek temelli yaklaşımlara doğru çeşitlendiğini göstermektedir.

Anahtar kelime ortak oluşum analizi, BMI araştırmasının kavramsal yapısının dokuz tematik küme etrafında örgütlendiğini göstermiştir. Bu kümeler; iş modeli tasarımı ve dijital dönüşüm, BMI ve sürdürülebilirlik için yetenekler, strateji-girişimcilik-rekabetçi gelişim, döngüsel ekonomi ve sürdürülebilir ekosistemler, dijital hizmetleştirme ve akıllı teknolojiler, açık ve işbirlikçi inovasyon, sosyal girişimcilik, değer yaratma mekanizmaları ve uluslararasılaşma ile yalın girişimcilik başlıklarında yoğunlaşmaktadır. Çekirdek arama terimleri olan “Business Model Innovation”, “Business Model” ve “Innovation” dışarıda bırakıldığında sürdürülebilirlik, döngüsel ekonomi, dijital dönüşüm, girişimcilik, değer yaratma ve dinamik yetenekler BMI araştırmasının öne çıkan temalarıdır.

APY örtüşüm görselleştirmesi, iş modeli tasarımı, değer yaratma, strateji ve inovasyonla ilişkili temaların görece daha erken yayın dönemleriyle; sürdürülebilirlik, döngüsel ekonomi, dijital dönüşüm, hizmetleştirme, ekosistemler ve yapay zekâ ile ilişkili temaların ise görece daha güncel ortalama yayın yıllarıyla bağlantılı olduğunu göstermektedir. Bununla birlikte APY, anahtar kelimelerin ortalama yayın yılını gösterdiğinden, bu sonuçlar doğrudan uzunlamasına değişim veya nedensel gelişim kanıtı olarak değerlendirilmemiştir. Bulgular, yalnızca tematik güncelliğin betimleyici göstergeleri olarak yorumlanmıştır.

Ülke ortak yazarlık analizi, BMI araştırmasının Avrupa, Kuzey Amerika ve Asya-Pasifik bölgelerini birbirine bağlayan uluslararası bir işbirliği yapısına sahip olduğunu göstermektedir. Birleşik Krallık, 281 toplam bağlantı gücü ile ağdaki en yüksek işbirliği bağlantısına sahip ülkedir. Almanya, Amerika Birleşik Devletleri, Çin ve İtalya da araştırma üretimi ve uluslararası bağlantılar açısından öne çıkmaktadır. Bu sonuçlar, BMI araştırmasının uluslararasılaşmış bir akademik alan olduğunu göstermektedir. Bununla birlikte ülke ortak yazarlık analizi doğrudan bilgi yayılımını veya bilgi transferini ölçmediğinden, bulgular işbirliği bağlantısının göstergesi olarak değerlendirilmiştir.

Sonuç ve Katkılar

Bulgular, BMI literatürünün entelektüel temeller, kavramsal genişleme, bilgi yeniden bileşimi ve uluslararası işbirliği olmak üzere dört analitik boyut üzerinden bütünleştirilebileceğini göstermektedir. Entelektüel temeller referans ve yazar ortak atıf analizlerinden; kavramsal genişleme anahtar kelime ortak oluşum ve APY analizlerinden; bilgi yeniden bileşimi bibliyografik eşleştirmeden; uluslararası işbirliği ise ülke ortak yazarlık analizinden türetilmiştir. Bu boyutlar birbirini tamamlayan analitik perspektiflerdir

ve sıralı aşamalar, nedensel mekanizmalar veya bilimsel gelişimin zamansal modeli olarak yorumlanmamalıdır.

Çalışmanın temel teorik katkısı, BMI araştırmasını tek bir bibliyometrik teknik üzerinden değil, altı tamamlayıcı bilim haritalama tekniğini aynı analitik tasarım içinde kullanarak çok boyutlu biçimde incelemesidir. İkinci olarak çalışma, BMI literatürünün entelektüel, kavramsal, tematik ve işbirlikçi özelliklerini bütünleştiren yorumlayıcı bir bakış açısı sunmaktadır. Üçüncü olarak geliştirilen bütünleştirici yorumlayıcı çerçeve, bibliyometrik göstergeler ile bu göstergelerin analitik anlamları arasındaki ayrımı açık biçimde korumaktadır. Bu nedenle çerçeve, BMI'nin gelişimini açıklayan genel bir teori değil, farklı bibliyometrik analizlerden elde edilen kanıtları düzenleyen yorumlayıcı bir sentez olarak değerlendirilmelidir.

Bulgular ayrıca sürdürülebilirlik, döngüsel ekonomi, dijital dönüşüm, hizmetleştirme, platform ekosistemleri ve yapay zekânın BMI araştırmalarında önemli araştırma yönleri olarak öne çıktığını göstermektedir. Gelecekteki araştırmalar bu temaları sistematik literatür incelemeleri, kuramsal geliştirme çalışmaları, ampirik araştırmalar ve karşılaştırmalı bibliyometrik analizlerle daha ayrıntılı biçimde inceleyebilir.

Sınırlılıklar ve Gelecek Araştırmalar

Çalışma, Scopus veri tabanında indekslenen İngilizce dergi makaleleriyle ve Business, Management and Accounting konu alanıyla sınırlıdır. Bu nedenle sonuçlar, diğer veri tabanlarında yer alan, farklı dillerde yayımlanan veya komşu disiplinlerde sınıflandırılan çalışmaların tamamını temsil etmeyebilir. Bulgular ayrıca kullanılan arama sorgusuna, dahil etme eşiklerine, tam sayım yöntemine, metadata standardizasyonuna, yazar adlarının ayrıştırılmasına, anahtar kelime uyumlaştırmasına ve küme yorumlarına duyarlıdır. Farklı parametreler, özellikle ağların çevresel yapısını veya küme bileşimlerini değiştirebilir. Ayrıca küme etiketlerinin belirlenmesi belirli ölçüde analitik yargı içermektedir.

Son olarak, bibliyometrik tekniklerin doğası gereği APY tematik güncelliği, bibliyografik eşleştirme ortak referans temelli araştırma cephelerini ve ülke ortak yazarlığı işbirliği bağlantısını göstermektedir. Dolayısıyla bu teknikler doğrudan nedensellik, bilgi entegrasyonu, bilgi transferi veya uzunlamasına gelişim ölçümü olarak değerlendirilmemelidir.

Gelecek araştırmaların birden fazla bibliyografik veri tabanını birleştirmesi, belirli sektör veya coğrafi bağlamlara odaklanması, alternatif sayım yöntemleri ve ağ parametreleri uygulaması ve bibliyometrik bilim haritalamayı sistematik literatür incelemeleri, nitel kanıt sentezi veya karma yöntemli araştırma tasarımlarıyla bütünleştirmesi önerilmektedir. Böylece BMI alanının kavramsal, teorik ve ampirik yapısına ilişkin bibliyometrik bulguları tamamlayan daha ayrıntılı açıklamalar üretilebilir.

Additional Information

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