

# A Bibliometric Study of Business Model Innovation Literature

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Article Info	ABSTRACT
<p><b>Article history:</b></p> <p>Received May, 2025 Revised May, 2025 Accepted May, 2025</p> <hr/> <p><b>Keywords:</b></p> <p>Business Model Innovation, Bibliometric Analysis, VOSviewer, Digital Transformation</p>	<p>This study presents a comprehensive bibliometric analysis of the global literature on Business Model Innovation (BMI), aiming to uncover its intellectual structure, thematic evolution, and collaborative research patterns. Utilizing data from the Scopus database and visualization tools such as VOSviewer, the study analyzes key co-citation networks, author collaborations, keyword co-occurrences, and temporal publication trends. The findings reveal that BMI has developed around several foundational scholars—most notably Zott, Osterwalder, Chesbrough, and Teece—while branching into emerging research areas such as digital transformation, sustainability, and circular economy. Geographically, the field is led by countries such as China, Germany, and the United States, with increasing contributions from developing economies. Thematic analysis indicates a shift from traditional strategy-oriented perspectives to more dynamic, digitally enabled, and sustainability-driven approaches. This study contributes to the literature by mapping the evolution of BMI as an interdisciplinary field and identifying future research opportunities, particularly in underexplored regions and application contexts.</p> <p><i>This is an open access article under the <a href="#">CC BY-SA</a> license.</i></p> <div></div>
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## 1. INTRODUCTION

In the dynamic landscape of modern business, innovation is no longer confined to products or services; it has extended to the very way businesses operate and create value. This phenomenon is encapsulated in the concept of Business Model Innovation (BMI) which is a reconfiguration of an organization's core logic to deliver value in novel ways. BMI has gained traction across disciplines as firms increasingly face volatile markets, technological disruptions, and changing consumer expectations [1]. Unlike traditional forms of innovation, BMI often entails profound changes to a firm's strategic

architecture, affecting the way it captures, delivers, and creates value for stakeholders [2].

The academic community has responded to this interest with a growing body of literature that spans disciplines such as strategic management, entrepreneurship, technology innovation, and marketing. Since the early 2000s, the volume of publications related to BMI has grown significantly, signaling its relevance in both theoretical and practical domains [3]. Scholars have explored BMI from various perspectives—its drivers, processes, typologies, and impacts on firm performance. This multidimensionality, while enriching, also introduces fragmentation,

making it difficult for researchers and practitioners to identify dominant themes, intellectual structures, and emerging trends within the field.

As BMI research continues to proliferate, a systematic understanding of its evolution becomes essential. Traditional literature reviews, while valuable, are often limited by subjective interpretations and narrative bias. In contrast, bibliometric analysis offers a data-driven approach to evaluate the development and structure of academic literature, enabling the identification of key publications, influential authors, institutional contributions, and thematic clusters [4]. This method provides a comprehensive and reproducible means of synthesizing large bodies of literature, which is particularly pertinent for fields like BMI that are inherently interdisciplinary.

Recent technological advances and globalization pressures have further accelerated the relevance of BMI. Companies are now compelled to revisit their business models more frequently than ever before, driven by forces such as digital transformation, environmental sustainability mandates, and platform-based economies [5]. Consequently, there is a growing need to understand how scholarly discussions on BMI have evolved in response to these contextual shifts. Mapping these trajectories not only enriches theoretical foundations but also informs managerial decision-making in innovation strategy.

Despite the increasing volume of publications, there remains limited clarity about the intellectual structure and knowledge flows in BMI research. Questions such as “Who are the most influential scholars?”, “Which institutions or countries are leading in this area?”, and “What thematic areas are emerging?” are not easily answered through traditional reviews. This gap necessitates a comprehensive bibliometric study that can illuminate patterns of collaboration, citation networks, and conceptual structures in BMI scholarship. By applying advanced bibliometric techniques and visualization tools, it becomes possible to

uncover hidden connections and guide future research directions.

While numerous studies have explored specific aspects of business model innovation—such as its impact on firm performance, its integration with digital technologies, or its role in entrepreneurial ventures—there has been no holistic bibliometric synthesis of the field to date. This absence leaves scholars without a structured overview of the intellectual evolution, key contributors, and thematic clusters that define BMI research. As a result, academic and practical efforts may be hampered by redundancy, fragmented perspectives, and missed opportunities for interdisciplinary integration. The lack of a consolidated bibliometric map makes it challenging to assess the maturity of the field or identify promising avenues for future inquiry. This study aims to systematically map and analyze the existing body of literature on Business Model Innovation using bibliometric methods.

## 2. METHODS

This study adopts a quantitative bibliometric analysis approach to systematically examine the intellectual structure and development trends in the field of Business Model Innovation (BMI). The bibliographic data were retrieved from the Scopus database, which is widely recognized for its comprehensive coverage of peer-reviewed journals and scholarly literature. A search query was formulated using the keywords “business model innovation” in the title, abstract, or keyword fields, ensuring a focused yet inclusive dataset. The search was restricted to articles, reviews, and conference papers published up to April 2025, with no limitation on subject area to capture the interdisciplinary nature of BMI. The data were then exported in CSV format, including information such as titles, abstracts, authors, keywords, publication years, affiliations, citations, and source titles. The analysis was conducted using VOSviewer (version 1.6.x)—a specialized software for building and visualizing bibliometric networks. Four

primary analyses were performed: (1) co-authorship analysis to identify collaboration patterns among authors and countries; (2) co-citation analysis to determine the most influential references; and (3) keyword co-occurrence analysis to detect major research themes and emerging topics. Thresholds for inclusion in the visual maps were set based on minimum citation and occurrence values to maintain clarity and relevance in the visualizations. The findings from these analyses offer a comprehensive overview of the knowledge base, key contributors, and intellectual trajectories within BMI research.

### 3. RESULTS AND DISCUSSION

#### 3.1 Co-Authorship Analysis

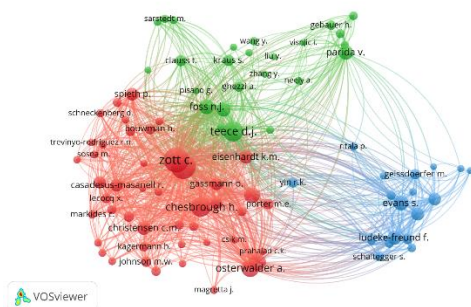


Figure 1. Author Visualization  
Source: Data Analysis

The visualization presents a co-citation network of authors in the field of Business Model Innovation (BMI), generated using VOSviewer. The network reveals three major clusters, each representing a distinct intellectual tradition. The red cluster, anchored by central figures such as Zott C., Chesbrough H., Osterwalder A., and Christensen C.M., reflects the foundational literature on value creation, business model design, and open innovation. These authors are extensively co-cited and form the conceptual core of BMI research. The green cluster, led by Teece D.J., Foss N.J., and Parida V., represents works integrating dynamic capabilities and strategic management perspectives, including firm-level innovation frameworks. The blue cluster, with key contributors like Lüdeke-Freund F., Evans S., and Geissdoerfer M., is associated with sustainability-oriented business model innovation, emphasizing circular economy,

sustainable value creation, and ecological impacts. The interlinking edges across clusters indicate strong interdisciplinary connections, signifying that BMI scholarship draws heavily from strategy, innovation, entrepreneurship, and sustainability domains. The node sizes reflect the citation volume, highlighting Zott and Chesbrough as the most influential authors in the network.

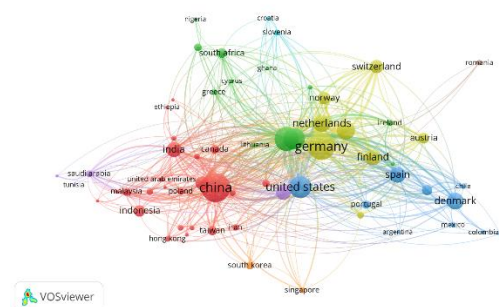


Figure 2. Country Visualization  
Source: Data Analysis

The figure illustrates a country-level co-authorship network in Business Model Innovation (BMI) research. The map reveals a dense and globally distributed collaboration structure, with several regional clusters of academic cooperation. China, Germany, and the United States emerge as the most prominent contributors, indicated by their large node sizes and extensive linkages. These countries act as central hubs in the BMI research ecosystem, forming collaborative bridges across continents. The European cluster, represented by Germany, the Netherlands, Switzerland, and Scandinavian countries such as Denmark and Finland, shows strong internal and cross-border cooperation, often linked with sustainability and innovation policies in the EU. The Asian cluster, with China, India, South Korea, and Malaysia, demonstrates growing output and interconnectivity, particularly in technology-driven BMI. Meanwhile, the United States maintains a strategic position with diverse international partnerships across Europe and Asia. Emerging contributors such as South Africa, Indonesia, and Saudi Arabia also appear in the network, suggesting a broadening geographic scope of BMI scholarship. The thickness of the edges indicates the strength of co-authorship ties, emphasizing that global research on BMI is

increasingly collaborative, interdisciplinary, and cross-regional in nature.

3.2 Co-Citation Analysis

Table 1. Top Cited References

Citation	Author	Title
2683	[6]	A literature and practice review to develop sustainable business model archetypes
2596	[5]	Business model innovation: Opportunities and barriers
2535	[7]	Digital transformation: A multidisciplinary reflection and research agenda
1706	[8]	Reinventing your business model
1682	[9]	Business models and dynamic capabilities
1559	[10]	Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go?
1405	[11]	Industry 4.0, digitization, and opportunities for sustainability
1063	[12]	Business model innovation: It's not just about technology anymore
1048	[13]	Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems
1031	[14]	Creating value through business model innovation

Source: Scopus

3.3 Keyword Co-Occurrence Network

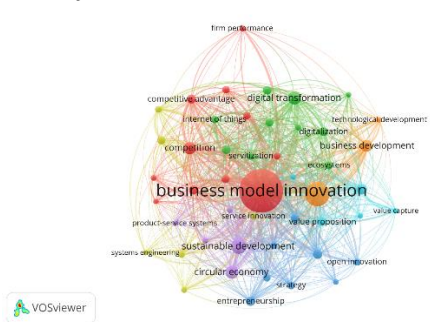


Figure 3. Network Visualization  
Source: Data Analysis

The image illustrates a keyword co-occurrence network in the domain of Business Model Innovation (BMI), revealing the conceptual structure and thematic diversity of the field. The visualization identifies several keyword clusters based on their co-appearance in academic publications. At the center of the map lies the dominant term "business model innovation", signifying its centrality and integration with numerous related concepts. The node size indicates frequency of occurrence, while the links represent the strength of co-occurrence, showing how frequently two keywords appear together in the same articles. This structure helps identify the primary research themes and evolving trends in the BMI literature. The red cluster focuses on BMI's relationship with firm performance, competitive advantage, digital transformation, and Internet of Things. This cluster reflects a strong managerial and strategic focus, emphasizing how firms utilize BMI to respond to competitive pressures and gain operational efficiency through technological enablers. The terms in this cluster suggest that BMI is often studied as a driver of value creation in the context of digital economies, where agility and innovation are crucial for maintaining competitive positioning.

The green cluster highlights themes such as servitization, digitalization, and business development, indicating a strong connection between BMI and the evolution of service-oriented strategies. These studies explore how firms shift from product-centric to service-centric models, especially under the influence of digital technologies. The focus is

often on operational transformation and customer engagement, aligning with broader shifts toward customer-centric and digital-first strategies in modern industries. The blue and purple clusters reveal an emerging emphasis on sustainable development, circular economy, and open innovation. These themes underscore the growing importance of integrating environmental and societal concerns into business model designs. Research within this domain investigates how firms innovate not only for profit, but also for ecological sustainability and social impact, highlighting the alignment of BMI with the UN Sustainable Development Goals (SDGs). The strong linkages with terms like value proposition, ecosystems, and strategy indicate that sustainability-oriented BMI is becoming a mature and impactful research stream. The yellow and orange clusters emphasize systemic perspectives, including systems engineering, product-service systems, and technological development. These keywords suggest an interdisciplinary trend, where engineering, innovation management, and technology studies converge to inform the design and deployment of innovative business models. This cluster reflects how BMI is increasingly conceptualized not just at the firm level, but as part of broader technological ecosystems and socio-technical transitions.

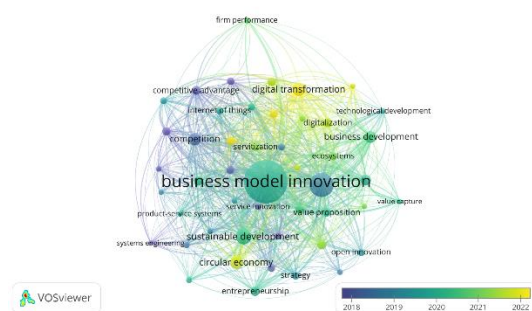


Figure 4. Overlay Visualization

Source: Data Analysis

The image depicts a temporal keyword co-occurrence map of the Business Model Innovation (BMI) literature. The color gradient represents the average publication year associated with each keyword, ranging from dark blue (older, ~2018) to bright yellow (recent, ~2022). At the center of the map, the keyword “business model innovation”

appears in a dominant teal-green tone, indicating its persistent relevance throughout the analyzed timeframe. Surrounding it are various related themes whose color gradients reveal the evolution of research trends within the BMI field. Keywords shaded in darker tones (blues and purples), such as “competitive advantage,” “competition,” “product-service systems,” and “systems engineering,” were prevalent in earlier BMI research. These topics largely reflected a strategic and operational focus—how business model innovation could drive firm-level competitiveness, improve service offerings, and support manufacturing transitions. Similarly, the emphasis on “sustainable development” and “circular economy”, which now appear in cooler tones, suggests that sustainability was an early thematic pillar in BMI discourse, though it remains influential today. In contrast, the bright yellow nodes—notably “digital transformation,” “technological development,” “digitalization,” and “business development”—signify emerging and recent research interests. These keywords highlight the rising significance of digital technologies in reshaping business models, especially in response to rapid technological shifts and post-pandemic economic restructuring. The term “ecosystems” also shows a more recent emergence, indicating growing attention to networked business models and value co-creation across stakeholders.

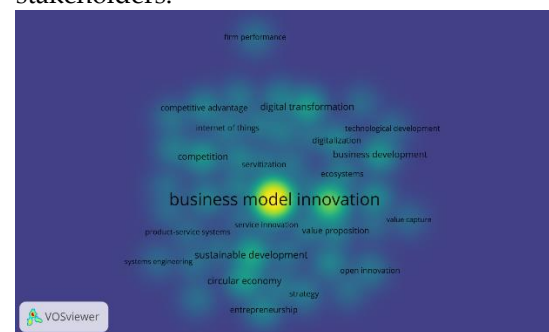


Figure 5. Density Visualization

Source: Data Analysis

The heatmap visualization presents the density of keyword co-occurrences in Business Model Innovation (BMI) literature. This map illustrates which thematic areas are most frequently explored by researchers. The



central keyword, "business model innovation," appears with the highest intensity in bright yellow, indicating its dominant presence and strong connectivity with surrounding topics. High-density regions surrounding this core include "digital transformation," "competitive advantage," "sustainable development," and "value proposition", highlighting these as focal themes commonly discussed in conjunction with BMI. In contrast, keywords located at the periphery, such as "firm performance," "ecosystems," "systems engineering," and "entrepreneurship," appear with lower density, reflected in darker green to blue shades. This suggests that while these topics are part of the BMI discourse, they are either less frequently co-mentioned or represent emerging or niche subfields.

## DISCUSSION

### *Intellectual Structure and Core Scholars*

The co-citation analysis highlights a strong theoretical foundation anchored by a group of seminal authors. At the center of the red cluster are Zott C., Osterwalder A., Chesbrough H., and Christensen C.M., whose work has deeply shaped the conceptual underpinnings of BMI. Zott and Amit's influential contributions on value creation and business model design, combined with Osterwalder's popularization of the Business Model Canvas, represent key frameworks adopted across academia and industry. Chesbrough's theory of open innovation and Christensen's disruptive innovation theory have also provided strategic lenses through which BMI is examined. These authors form a tightly connected citation core, indicating a cohesive, foundational literature that continues to inform new studies. In contrast, the green and blue clusters represent emerging or parallel schools of thought. Scholars such as Teece D.J., Foss N.J., and Parida V. contribute from a strategic management and dynamic capabilities perspective, positioning BMI as a response mechanism to environmental volatility. Meanwhile, the blue cluster—led by Lüdeke-Freund F., Geissdoerfer M., and Evans S.—illustrates a sustainability-oriented trajectory, emphasizing circular economy, green

innovation, and system-level transformation. This diversification in intellectual lineage suggests that BMI is not bound by one paradigm but is evolving into an interdisciplinary hub that bridges innovation studies, strategy, entrepreneurship, and sustainability.

### *Global Collaboration and Geographical Trends*

The co-authorship analysis by country reveals a concentration of research productivity in developed economies, particularly China, Germany, and the United States. These countries act as global hubs, forming dense international collaboration networks. Germany, supported by contributions from the Netherlands, Switzerland, and Scandinavia, emerges as a key player in European BMI scholarship—often linked to sustainability and industrial innovation. China's prominent position, however, reflects its growing investment in research and development, digital innovation, and policy-driven transformation. The U.S. continues to play a pivotal role in shaping theoretical developments and fostering global partnerships. Interestingly, the map also shows participation from emerging economies, including India, Indonesia, South Africa, and Saudi Arabia, indicating a diffusion of BMI research into Global South contexts. This trend is significant as it points to the contextual diversity of BMI applications, from high-tech ecosystems in South Korea to resource-constrained innovation in African nations. The collaborative ties among countries suggest a global convergence of interest, albeit still shaped by regional priorities—such as digital entrepreneurship in Asia, green transitions in Europe, and institutional innovation in North America.

### *Thematic Evolution and Conceptual Clusters*

The keyword co-occurrence analysis identifies five thematic clusters, each representing a major research stream. The central red cluster focuses on strategic and competitive implications of BMI, examining how it contributes to firm performance, market positioning, and response to digital disruption. Concepts such as competitive

advantage, digital transformation, and Internet of Things are tightly integrated, showcasing the convergence of strategic management and emerging technology within BMI discourse. The green cluster explores digitalization and business development, linking BMI with operational innovation and digital enablement. Keywords like digitalization, technological development, and ecosystems suggest that firms are rethinking their value creation logic through digital platforms, automation, and agile organizational forms. This reflects real-world shifts where cloud computing, AI, and Industry 4.0 reshape the boundaries of business models. The blue and purple clusters signal a strong sustainability focus in contemporary BMI research. Terms like sustainable development, circular economy, product-service systems, and systems engineering show how researchers are moving beyond profit-centric models toward inclusive, environmentally responsible, and regenerative business strategies. This is particularly important as it aligns BMI scholarship with global sustainability agendas, including the UN SDGs and net-zero transitions. Notably, keywords such as value proposition, open innovation, and entrepreneurship act as bridging terms across clusters, indicating their versatility and importance in multiple research contexts. The presence of service innovation and value capture further reveals a growing interest in not just designing innovative models, but also in effectively monetizing and delivering them.

#### *Temporal Trends and Emerging Frontiers*

The overlay visualization based on average publication year reveals the temporal progression of BMI themes. Older research (pre-2019) was primarily focused on strategic alignment, competitive dynamics, and foundational models, as indicated by darker shades near terms like competitive advantage and systems engineering. As time progressed, the focus expanded toward digital transformation, business development, and ecosystems, which appear in yellow—representing research published more recently (2021–2022). This trend indicates a

shift in BMI research from static strategy-based exploration toward dynamic, digitally-enabled transformations. The rise of digitalization as a keyword shows that the technological context has become a critical enabler of new business models, particularly in the post-pandemic era where firms had to adapt rapidly. At the same time, the emergence of ecosystems reflects the growing emphasis on collaboration, platforms, and multi-stakeholder networks as opposed to firm-centric innovation. Importantly, the sustained relevance of sustainable development and circular economy, which show mid-range temporal coloring, suggests that these are maturing research themes that remain central but no longer "emerging." Meanwhile, terms like technological development and digital transformation are trending upward, indicating that BMI's future research trajectory will likely be shaped by continuous technological disruption and the need for organizational resilience.

#### *Density Insights and Research Saturation*

The keyword heatmap reinforces the centrality of certain themes while pointing to opportunities for diversification. The intense yellow glow around "business model innovation", "digital transformation", and "sustainable development" signifies their high research density, denoting established and heavily cited areas. Conversely, lower-density regions—such as "ecosystems," "strategy," "firm performance," and "entrepreneurship"—suggest underexplored or emerging niches within the field. These insights provide valuable implications. First, they highlight the risk of thematic saturation, where core topics may face diminishing marginal returns in novelty or insight unless reconceptualized. Second, they indicate areas ripe for future exploration—particularly in connecting BMI to firm-level performance metrics, startup ecosystems, and stakeholder governance models. Finally, the moderate density around value capture and service innovation suggests a need for more empirical work that links business model design to actual financial and societal outcomes.

#### 4. CONCLUSION

This bibliometric study provides a comprehensive overview of the intellectual landscape, thematic evolution, and global collaboration patterns in the field of **Business Model Innovation (BMI)**. By analyzing co-citation networks, country collaborations, keyword co-occurrences, and temporal trends, the study uncovers the pivotal authors, dominant themes, and emerging research directions that have shaped BMI scholarship over time. The findings highlight that BMI has transitioned from a strategy- and performance-driven concept to one deeply intertwined with **digital transformation**, **sustainability**, and **ecosystem-based**

**innovation**. While core themes such as value creation, competitive advantage, and digitalization remain central, newer topics like circular economy, open innovation, and platform ecosystems are gaining prominence. The study underscores the growing **interdisciplinary nature and global relevance** of BMI research and points toward opportunities for future exploration, particularly in underrepresented regions and empirical linkages to firm performance. Overall, this bibliometric mapping offers valuable guidance for academics, practitioners, and policymakers seeking to understand and contribute to the evolving discourse on business model innovation.

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