

Article

State of the Art of Business Models: A Bibliometric Analysis

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Abstract: Various studies have investigated the business model (BM) in different dimensions. However, bibliometric analyses in this discipline are still limited. This study aims to conduct a bibliometric analysis of business model research, identifying the state of the art, trends, and other indicators by analyzing articles published on the Web of Science (WoS) platform from 2017 to 2022. The present study examines the simultaneous occurrence of publications by year, keyword trends, bibliographic coupling, analysis of co-authorship, cities, and institutions, and finds that the literature on business models rapidly expanded between 2017 and 2020. A total of 14,881 articles were obtained as samples. The present study employs VOSviewer software to analyze the data. A considerable amount of literature has been produced on BMs, but researchers have stopped developing further literature which is thought-provoking. Based on the findings of this study, it is concluded that there is a need to research BMs in different domains such as sustainability and digitalization.

Keywords: business model; bibliometric analysis; business model innovation; sustainability; digitalization



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1. Introduction

The business model concept was developed during the 1970s and connected to IT system designs. Since the 1990s, organizational and strategy theories and technology developments have fueled the idea's growth [1]. Understanding your business model is important, a corporation can obtain a competitive edge by building a unique business model [2]. According to the author, more frequent and complicated disagreements increase a firm's competitive edge. A business model (BM) can be defined by the literature as the "architecture or design of a business's value capture, delivery, and creation" [3]. Due to its complex character and vast scope in progressive ideas, combining two "contradictory" worlds of knowledge (physical/technical based on concrete facts and economically based on questionable assumptions), the BM definition is imprecise. It has been interpreted in numerous ways [4]. BM is defined as adjusting business models in response to internal and external motivations [5,6]. BM is "the quest for novel organization logic and new tactics to develop and preserve value" [7]. BM is considered more important than service/product or process innovation [8].

A BM describes how a company or organization provides value to its clients. In its most basic form, a business model offers details about the organization's target market, the requirements of the same market, and how the company's goods or services will satisfy those needs [6]. Business model innovation is how a company modifies its business model. This innovation frequently represents a fundamental shift in how a business provides value to its clients, whether through the creation of new income sources or distribution channels [9].

Small and medium-sized enterprises (SMEs), vital to a country's economic development, are pushed to construct their business models to increase efficiency and competitiveness [6,10]. The existing economic system is steadily splaying socioeconomic inequities, such as access to new services and products and life expectancy [11]. Modern economic

trends have also hampered businesses. Integration and globalization have a growing influence on the ability of economic institutions to function and improve. Growing political, social, and economic interconnectedness and establishing an information infrastructure are the basic factors of globalization [12]. Globalization links the global perspective to understanding social, political, and economic phenomena [13]. Almost all businesses compete in today's dynamic and continuously changing marketplaces. These achievements are shaping current economic, political, and social tendencies. It surpasses the ecosystem's intrinsic potential for self-healing [14]. Therefore, social behavior and the industrial pattern must alter according to the market environment [15,16].

To improve social inclusion, environmental resilience, and economic performance, firms must build relationships with their customers, suppliers, distributors, and other stakeholders to provide products, services, technologies, processes, and sustainable business models that benefit the economy, society, and environment [17]. Business model innovation refers to how a company modifies its business model. This innovation frequently represents a fundamental shift in how a business provides value to its clients, creating new income sources or distribution channels. The business model's emphasis on interconnection and multi-lateral ties may help managers and entrepreneurs compete in an integrated economy [18]. Business models are formed in reaction to market changes and aim to beat the market competition [19]. Traditional company models cannot solve long-term business problems [20]. To develop, deliver, and acquire value, businesses must choose the right business model [21]. A business model modifies established models by introducing originality into value chains [5]. Businesses must change how they create, provide, and collect economic, environmental, and social value [22]. Organizations know they can attain sustainable goals through technical advances and business model innovation [12,23]. A business model is a "simplified depiction of the components, their interrelationships, and the engagements with its stakeholders" [24]. Business models have improved organizations' sustainability performance considering the sustainable development goals (SDGs). The business model notion illustrates how an organization sustainably generates, provides, and collects value in cultural, social, economic, or other areas. A business model describes how a corporation creates and uses economic value [18].

Business model development aims to improve shareholder value and company earnings [25]. Business model innovation focuses on management, operations, and economics to identify, evaluate, and enhance concepts. Valuation techniques in a firm's value chains must be understood [9]. Global warming and resource shortages affect development and consumption. If businesses do not improve development and consumption, population and income will rise. To satisfy their stakeholders, businesses must change and reinvent their company methods [26]. Business models have gained prominence in the previous two decades of e-commerce development. Recent research on this topic has progressed rapidly, spanning several application disciplines. The current analysis reviews the 2017–2022 business model and identifies crucial characteristics, using an approach based on business model innovation literature. BMs must address value capture, value delivery, and value creation [27].

The findings of this study are important for academics and professionals because it will help bring a better understanding to a BM's bigger picture and create an urgency to design and implement more realistic BMs for enterprises. The current study reveals that the literature on business models' innovation is fast growing by looking at the simultaneous occurrence of publications by year, keyword trends, bibliographic coupling, and analysis of co-authorship, cities, and institutions. Through the careful selection and content analysis of the most current and significant articles published in this research field, the present study adds to the existing literature by providing information on the state of the art and highlighting the trends, gaps, and research possibilities in this area. Those now investigating or planning to pursue this field of investigation may obtain invaluable insight from this contribution.

This study aims to introduce a bibliometric approach to BMs in the field of business and innovation by observing articles published on the Web of Science and then classifying the results with VOSviewer software to determine the state of the art in this area and to identify trends, spot research gaps and openings in business model innovation, and other relevant indicators. This study analyzes the current literature to determine where further research is needed in business models.

As there has been a significant decline in the number of publications in the last five years, this study sets out to increase the popularity of this field of study in the hopes of increasing the number of publications. In addition, this study compiles business model-related journal articles to illustrate the breadth of this type of innovation in business model innovation. Further, this study offers a geographic analysis of the literature on business model innovation by looking at where the authors of these 14,881 articles are located since the sample is geographically dispersed among 19 cities across 5 continents. Additionally, this study details the “publications by organizations” and “related articles on the business model innovation” that are key to locating the most important works in the field.

The present study is segmented into five chapters as follows: 1. Introduction, 2. Methodology, 3. Bibliometric Analysis, 4. Discussions and Findings, and 5. Conclusion and Policy Recommendations. The Introduction explains the business models’ background, including their brief history, and importance. Moreover, it also explains this study’s objectives, aims, scope, and goals. The second chapter reveals the methodology used for this study, i.e., bibliometric analysis. The third chapter shows the bibliometric analysis of the publications of BMs throughout the years 2017 to 2022 by year, keyword trends, bibliographic coupling, and analysis of co-authorship, cities, and institutions. This chapter also presents the graphics of indicators used in bibliometric analysis using VOSviewer. The fourth chapter discusses the research and bibliometric analysis and research findings. The last chapter displays the conclusions of the study as well as the policy recommendations.

2. Materials and Methods

This study focuses on the state of the art of business models through a bibliographic literature analysis from 2017 to 2022. The bibliometric analysis approach is very popular nowadays because it provides a structured representation of the papers published in each study field using objective criteria for examining and organizing the publications. This study used a conceptual research technique to analyze innovative business models based on a literature review. The process comprises numerous phases, including collecting relevant works, evaluating concepts and aspects from existing studies, identifying knowledge gaps and contradictions in the literature, and developing a new idea. The term “business model” was used as a keyword to search the literature since it is connected to the understudied issue. Different research publications were found on this topic in different journals, such as the *Journal of Sustainability*, *Business Modelling and Software Design*, *Journal of Cleaner Production*, *International Journal of Business and Society*, *Journal of Wireless Personal Communications*, *International Journal of Technology and Management*, *Business Strategy and the Environment*, *International Journal of Innovation Management*, *Wireless Personal Communications*, *Industrial Marketing and Purchasing (IMP) Journal*, *International Journal of Innovation and Management*, and the list continues. The existing concepts are studied to identify the ideas and aspects that have been studied before. This process was designed to discover the shortcomings and new features that must be included in future innovative business models. These characteristics and new ones are then included in a new BM framework to produce more effective, innovative business solutions. This research methodology can be divided into four phases. The first phase was to choose a bibliographic database. The chosen bibliographic database was the Web of Science (WoS) Core Collection database since it is one of the most prominent bibliographic databases which includes other sub-databases. The second phase consisted of filtering the search in Web of Science. The term “business models” was filtered in the paper’s keywords and the year of publication was set from 2017 to 2022. The first 50 papers were selected since the Web of Science algorithm detects the most relevant

papers for the given keywords. The third phase consisted of the collection of the data records from the 50 papers selected. These data concern the authors, publisher, journals, publication year, and the amount of volume each journal has published from 2017 until 2022. The journals that these 50 papers are related to have published 14,881 articles from 2017 to 2022. In the fourth phase, the collected data were then analyzed and sorted, filtered, and formatted to produce the data tables presented in the next chapter. The VOSviewer software was also used as a form of graphic analysis for specific data such as the “keyword analysis” and “bibliographic coupling of authors”, also explained in the next chapter. The use of the VOSviewer application, in turn, allows the data to be shown graphically using a categorical map.

Nevertheless, the Web of Science collects scientific articles with the greatest effect and is employed as the key parameter in academic decision-making [28]. The findings established the development status and the key trends in terms of impact, publications, authors, major journals, topics, countries, and institutions. Analysis and graphic depiction are necessary since they may assist professionals and academics in having a better comprehension of what has been discovered in business models. The quotation is generated when two documents are acquired from the same article. This strategy is used in documents, journals, and authors. The co-occurrence of keywords quantifies the most frequently used terms in papers. Co-authorship shows the number of publications with a given collection of variables and how they relate to one another, and bibliographic coupling occurs when two papers quote the same document [29].

3. Results

3.1. Publication by Years (2017–2022)

Figure 1 depicts the yearly variations in publications on this topic based on a sample of 14,881 articles. Regarding annual productivity, 14,881 articles were published between 2017 and 2022. The year 2017 represented the maximum number of articles published on the topic of business models, which was 11,283. In 2017, the concept of BMs had a steep increase in published papers due to the wide research community. In 2017, researchers focused on developing a sustainable business model to achieve SDGs introduced in 2015. It could be said that conducting vast literature on BMs in 2017 has contributed greatly to maturing the topic. The rapid expansion of the research on business models between 2017 and 2020 could be explained by the increasing importance of digital technology and its impact on businesses [1]. As technology continues to evolve and disrupt traditional business models, companies and researchers are looking for new ways to adapt and stay competitive. Additionally, the global economic environment during this period has also played a role, as companies and researchers sought to understand and navigate the challenges posed by shifts in global trade and economic conditions [6,10,18]. Finally, the field of business model innovation is relatively new, and as such, more research is required to understand the complex relationships between business models and performance [12,23]. However, since the COVID-19 pandemic had a stronger impact on businesses in 2020, business researchers shifted their focus to designing and implementing digital business models. However, published BM studies have decreased significantly, with 331 and 89 publications published in 2021 and 2022, respectively.



Figure 1. Publication by years from 2017 to 2022.

3.2. Publication by Journals (2017–2022)

Table 1 shows that out of 14,881 articles, 11,034 (74.15%) were published by “*Business Process Management Workshops (BPM 2017)*”, 944 (6.34%) by the “*Journal of Cleaner Production*”, 592 (3.98%) by “*Advances in Production Management Systems: Towards smart and Digital Manufacturing, PTII*”, 391 (2.63%) by “*Business Modeling and Software Design, BMSD 2020*”, 356 (2.39%) by “*Business Modeling and Software Design*”, 291 (1.96%) by “*Enterprise Information Systems (ICEIS 2016)*”, 217 (1.46%) by “*Wireless Personal Communications*”, and the other 1056 (7.06%) by a large collection of journals shown in Table 1 above. The *Business Process Management Workshops (BPM 2017)* journal has the most publications due to its wide scope and purpose. This topic is interdisciplinary and may be published in journals from many domains and with various approaches.

Table 1. Publication by journals from 2017 to 2022.

Journals	Volume	% Out of 14881
Business Process Management Workshops (BPM 2017)	11,034	74.15%
Journal of Cleaner Production	944	6.34%
Advances in Production Management Systems: Towards smart and Digital Manufacturing, PT II	592	3.98%
Business Modelling and Software Design, 2020	391	2.63%
Business Modelling and Software Design, 2019	356	2.39%
Enterprise Information Systems, ICEIS 2016	291	1.96%
Wireless Personal Communications	217	1.46%
Journal of Business Ethics	152	1.02%
Journal of Business Research	130	0.87%
International Journal of Technology Management	89	0.60%
Industrial Marketing Management	86	0.58%
Business Strategy and the Environment	85	0.57%
Business Horizons	63	0.42%
Research-Technology Management	61	0.41%
Long Range Planning	51	0.34%
Journal of Management Development	36	0.24%
Proceeding of the second International Conference on Economic Business Management (FEEM 2017)	33	0.22%
Technology Analysis & Strategic Management	32	0.22%
Electronic Markets	30	0.20%
NTU Management Review	29	0.19%
Sustainability	26	0.17%
Ekonomiska Misao I Praksa-Economic Thought and Practice	26	0.17%
International Journal of Electronic Commerce	22	0.15%
International Journal of Innovation Management	21	0.14%
International Journal of Business and Society	19	0.13%
Innovation and Management Review	15	0.10%

Table 1. *Cont.*

Journals	Volume	% Out of 14881
Journal of Competitiveness	13	0.09%
IMP Journal	11	0.07%
African Journal of Science Technology Innovation and Development	11	0.07%
Journal of Family Business Management	11	0.07%
2017 IEEE 19th Conference on Business Informatics, Vol 1	2	0.01%
2017 IEEE 19th Conference on Business Informatics, Vol 2	2	0.01%

3.3. Keyword Analysis (2017–2022)

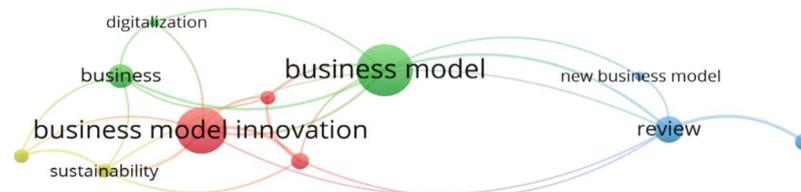
The most used keywords were collected and examined to categorize the 14,881 articles in the sample. This analysis highlights the keywords that most frequently appeared in the investigated area.

From the 50 publications from 2017 to 2022, 128 keywords were found of which 11 were used in more than one article, resulting in a prevalence of these 11 articles of 8.59% ($11 \times 128 / 100$). Table 2 shows that the keyword “business model” has the most occurrence in research publications, with an occurrence rate of 16 (25%). Further, the keyword “business model innovation” has the second highest occurrence in the research publications, appearing 14 (22%) times. These two keywords have occurred the most in the research publications because of the changing needs and requirements of the business world. Researchers aim to design and implement the most suitable and practical BM possible through the BM innovation process.

Table 2. Keyword analysis from 2017 to 2022.

Keywords	Occurrences	% Out of 64
Business Model	16	25%
Business Model Innovation	14	22%
Review	7	11%
Business	6	9%
Sustainability Business Model	4	6%
Approach	4	6%
Sustainable Business Model	3	5%
Sustainability	3	5%
Pattern	3	5%
New Business Model	2	3%
Digitalization	2	3%

Author keyword analysis, in Figure 2, applied in this research, aims to recognize the relationship between keywords and indicate the clusters. This analysis requires one occurrence of a keyword.

**Figure 2.** Keyword analysis (2017–2022).

Thus, VOSviewer can be used to visualize the thresholds. The analysis of the 50 documents generated 4 clusters with different colors. The prominent cluster is green, labelled as “business model”, which possesses the most researched keyword. The second cluster, which is represented in red, is labelled as “business model innovation”. The third cluster, represented with blue dots, is labelled as “review”, and the fourth cluster, in yellow, is labelled as “sustainability”.

3.4. Geographical Analysis of Publications (2017–2022)

Studying the authors’ regions of affiliation reveals that this research has a global scope since the sample’s 14,881 articles were published from 19 different cities worldwide. This implies that at least one publication has been published in each city. Based on the data, Cham has the most publications with 12,065 (81.08%) articles, followed by Oxford with 995 (6.69%) articles, and Berlin with 599 (4.03%) articles. New York ranks fourth in terms of publications. Springer International Publishing AG is a major publisher of academic journals, books, and other scholarly publications in a wide range of fields, including business and management. Since the majority of the business model research publications from 2017 to 2022 were published in Springer-affiliated journals, this gives Cham a significant advantage in terms of the number of publications in this field. Table 3 shows the exact results of publications in co-authorship by city from 2017 to 2022.

Table 3. Number of publications in co-authorship by city from 2017 to 2022.

Publications by City	Volume	% Out of 14881
Cham	12,065	81.08%
Oxford	995	6.69%
Berlin	599	4.03%
New York	437	2.94%
Dordrecht	152	1.02%
Geneva	89	0.60%
Hoboken	85	0.57%
Bingley	73	0.49%
Abingdon	65	0.44%
Amsterdam	63	0.42%
Arlington	61	0.41%
Paris	33	0.22%
Heidelberg	30	0.20%
Taiwan	29	0.19%
Basel	26	0.17%
Dubrovnik	26	0.17%
Singapore	21	0.14%
Sarawak	19	0.13%
Zlin	13	0.09%

3.5. Analysis of Publications by Organization (2017–2022)

Table 4 depicts the results of publications by organizations. The top five organizations responsible for the publications of the 14,881 articles are “Springer International Publishing AG-Cham, Switzerland”, “Elsevier SCI Ltd.-Amsterdam, Netherlands”, “Springer-Verlag Berlin-Berlin, Germany”, “Springer-Cham, Switzerland”, and “Elsevier Science Inc.-New York, NY, USA”. Nevertheless, apart from what happens in journals or countries of publishing, it is obvious that the volume of the articles issued by the organization is extremely diverse. “Springer International Publishing AG-Cham, Switzerland” is the topmost publisher with 12,065 (81.08%) out of 14,881 articles. “Elsevier SCI Ltd.-Amsterdam, Netherlands” is the publisher with the second highest number of articles published, with 1052 (7.07%). “Springer-Verlag Berlin-Berlin, Germany” is the publisher with the third highest number of articles published, with 599 (4.03%). “Springer-Cham, Switzerland” is the fourth with 369 (2.48%), and “Elsevier Science Inc.-New York, NY, USA” is the fifth with 130 (0.87%).

Table 4. Publications by organization from 2017 to 2022.

Publisher (Organization)	Volume	% Out of 14,881
International Publishing Ag	12,065	81.08%
Elsevier Sci Ltd.	1052	7.07%
Springer-Verlag Berlin	599	4.03%
Springer	369	2.48%
Elsevier Science Inc.	130	0.87%
Inderscience Enterprises Ltd.	89	0.60%
Elsevier Science Inc.	86	0.58%
Wiley	85	0.57%
Emerald Group Publishing Ltd.	73	0.49%
Routledge Journals, Taylor, & Francis Ltd.	65	0.44%
Elsevier	63	0.42%
Industrial Research Inst, Inc.	61	0.41%
Atlantis Press	33	0.22%
Springer Heidelberg	30	0.20%
Natl Taiwan Univ, Coll Management	29	0.19%
MDPI	26	0.17%
Univ Dubrovnik	26	0.17%
World Scientific Publ. Co. PTE Ltd.	21	0.14%
Univ Malaysia Sarawak, Fac Economics & Business	19	0.13%
Univ Tomase Bati & Zline, Fak Management	13	0.09%
Tu Ekonomiky	13	0.09%
MDPI	13	0.09%
IEEE	4	0.03%

3.6. Analysis of Publications by Citations (2017–2022)

The assessment of article citations is probably the most widely used method for determining the effect of authors, journals, and publications since it identifies the most significant works in the research area [29]. It is possible to determine which articles are most frequently cited in this field. Table 5 examines the pattern of citations in the relevant field of research.

Table 5. Analysis of citations from 2017 to 2022.

Article Title	Authors	Journals	Publication Year	Citations
Circular business models: A review	[30]	Journal of Cleaner Production	2020	157
Sustainable business model innovation: A review	[5]	Journal of Cleaner Production	2018	120
Characterizing Business Models for Digital Business Through Patterns	[31]	International Journal of Electronic Commerce	2017	109
Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future	[16]	Industrial Marketing Management	2020	106
Dynamic business modelling for sustainability: Exploring a system dynamics perspective to develop sustainable business models	[3]	Business Strategy and the Environment	2019	100
Anatomy of sustainable business model innovation	[22]	Journal of Cleaner Production	2018	99
Business Model Innovation for Sustainability: Towards a Unified Perspective for Creation of Sustainable Business Models	[32]	Business Strategy and the Environment	2017	97
Sustainable Business Model Innovation: An Umbrella Review	[5]	Sustainability	2017	91
Towards Sustainable Innovative Business Models	[33]	Sustainability	2017	79

Table 5 shows that the articles “Circular business models: A review” and “Sustainable business model innovation: A review” are the most cited articles among 50 publications from 2017 to 2022 and have 157 and 120 cited rates, respectively. Both articles were published in the “Journal of Cleaner Production” by Professor. Dr. Geissdoerfer, in 2020 and 2018 [5,30], from Oxford University, England. The third most cited article among 50 publications was published by Beynon et al. in 2017 [31] “Characterizing Business Models for Digital Business Through Patterns” in the “International Journal of Electronic Commerce”, which has a 109 cited rate. The most cited article explains the critical concepts of BMs in layman’s terms. There is much discussion about the sustainable business model and BMs for digital businesses due to their relevance to contemporary needs. The second and third most cited articles explain the existing problems and invite researchers to conduct further research in the same domain.

3.7. Bibliographic Coupling of Authors (2017–2022)

When two documents cite the same document, this is referred to as bibliographic coupling [29]. This might illustrate the relative strength of one publication in comparison to a group of other publications. This method applies to journals, publications, institutions, authors, and regions. It is possible to discover which publications and authors are associated through repeated citations by analyzing the bibliographic coupling of authors. Figure 3 depicts the bibliographic coupling of authors and permits us to understand and quantify the strength of their association. The map depicts two distinct groups, and the lines represent concurrent citations between the scholars.

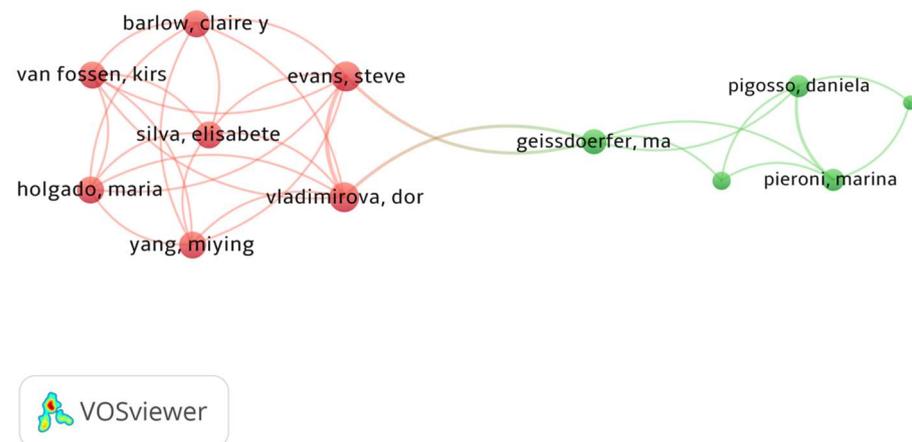


Figure 3. Bibliographic coupling of authors from 2017 to 2022.

4. Discussion

The increased recognition of the business model phenomena, alongside digitization and the internet boom, drew much academic and practitioner attention [34]. Various studies have examined BMs in different fields.

For instance, Jin et al. [35] analyzed the importance of the business model canvas in clothing industries using 3-D printing technology.

Lamendola and Genet [36] analyzed how time perception affects the business model choice of entrepreneurs. Further, they observed that when entrepreneurs perceive a time constraint, they concentrate on knowledge and skills from their own experiences and use one-sided business strategies. However, with no apparent time constraint, entrepreneurs may commit more time investigating their surroundings and developing alternate business model designs.

Bocken et al. [37] analyzed a sustainable business model and identified three main issues: boundary setting, construct clarity, and uncertainty about consequences. Further, they argued that a viable business model is about providing greater customer and business value by solving societal and environmental issues via the way business is conducted.

However, they did not analyze the consequences of business model innovations. Therefore, implementing the innovative business model leads to undesirable results.

Athanasopoulou and De Reuver [38] analyzed how business model tools support the process of business model exploration. They found that tools for business model exploration should permit understanding the idea of business models when the preliminary building blocks are unclear, facilitate the creation of substitutes and several variants of business models, and assist in making decisions when contrasting business model choices.

Evans et al. [32] examined the literature on sustainability innovation, BMs, stakeholder theory, product–service systems, and networks theory. They developed five propositions that facilitate the formation of a sustainable business model in an integrated perception.

Ganguly and Euchner [39] analyzed how to innovate a business model to create and capture the market. They experimented with the firms that produce goods and then addressed the relevant problems raised during the process. Finally, they found a six-step model to capture value in the market.

Dönmez and Özevren [40] studied the Istanbul Metropolitan Municipality’s transportation business model. They specifically focused on the maritime industry and developed a model for water transportation. They found that a successful business model needs to be sustainable, valuable, and profitable. Further, they argued that an effective business model significantly contributes to the sustainability of any organization and provides a new agenda to organizations that need to acquire a competitive advantage.

López et al. [33] investigated how businesses build their business models to deal with sustainability’s social, environmental, and economic dimensions and interconnectedness. They argued that social, ecological, and economic dimensions play an important role in designing business models. Therefore, managers must consider them simultaneously to develop innovative business models.

As mentioned above, analysis by publication citation is widely used as it reveals the significance of the research work. Topics such as sustainability, sustainable business model, circular business model, and digitization are new and not fully comprehended by the researchers; therefore, understanding these concepts is needed before moving forward to conduct research. The most cited publications, such as “Sustainable business model innovation: A review” [5], “Circular business models: A review” [30], “Characterizing Business Models for Digital Business Through Patterns” [31], “Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future” [41], and “Dynamic business modelling for sustainability: Exploring a system dynamics perspective to develop sustainable business models” [42] explain the novel concepts from a historical and modern business world point of view. This makes researchers’ work easier by defining the limitations of their work and providing them with future research opportunities. Table 5 depicts that the most cited publications are reviews that provide explanations of the novel BMs and topics in layman’s terms. For example, “Circular business models: A review” by Geissdoerfer et al. [30] discusses the circular business model and presents its history and working definition to clarify this concept using easy-to-understand language.

Moreover, this research also presents a conceptual framework and paves the road for circular business model innovation by indicating future research opportunities. Geissdoerfer et al [5] also reviewed another new concept, i.e., sustainable business model innovation, and explained it in the light of past developments and provided working definitions. Their research majorly depicts solving the real-world problems of the sustainable business model innovation process by bridging the design and implementation gap of sustainable business model innovation.

5. Conclusions

5.1. Conclusions

The current study adds to previous studies by providing information on the state of the art and analyzing gaps and research opportunities by selecting and analyzing the most relevant and recent publications published in this study area. The current study’s

findings will also help academics and practitioners comprehend the business model from a holistic viewpoint. In this sense, the case study would be the next key step in analyzing the success of the proposed business model, and it is advised that researchers examine it for the business model's future development.

It has demonstrated the significance of seeking a business model performance metric by addressing the market's relevance and role and proving the importance of management in adopting the business model approach.

Simultaneously, the role of stakeholders in business model research was identified to capture the various points of view and respective engagement, as well as their link with business model challenges.

As can be seen in Table 1, BMs were studied and researched the most in 2017, due to the aim of designing and implementing a BM that can help achieve SDGs. Because of the vast literature development in 2017, the research on BMs matured, and the number of research publications decreased in the following two years. However, in 2020, researchers began to develop the literature to find BMs which could be used amid the COVID-19 pandemic. Developing a practical BM gave rise to the concept of BM innovation, which has been researched side by side. Moreover, changing needs in the business world compelled researchers to design and develop business models to meet the requirements; therefore, sustainability is a novel topic included in the BM research, and a considerable amount of literature has been produced around it, as can be seen in Table 2. Different journals have a wide scope in business tools, techniques, and methodologies and researchers select those journals to publish their articles. For example, despite *Business Modelling and Software Design, 2020* and *Business Modeling and Software Design, 2019* journals, most researchers have chosen to publish their articles in *Business Process Management Workshops (BPM 2017)* due to their wide scope and purpose. *Business Process Management Workshops' (BPM 2017)* scope encompasses e-business, a need of the contemporary business world.

Much literature has been produced on BMs, but researchers have stopped developing further literature which is thought-provoking, and there is a need to research BMs in different domains, such as sustainability and digitalization. Furthermore, different publications show that BMs are studied and researched globally.

Other accomplishments of the current study might be highlighted. First, this study identifies the state of the art and an overall evolution view of the business model employed in this topic of interest. The most mentioned keywords used in the examined articles are "business model" and the term "business model innovation". Keyword clusters were identified with VOSviewer.

The second contribution is premised on comprehending the interest in this study. In 2017, the highest number of articles had been published on business models, namely 11,283 articles. In the following years, 826 articles were published in 2018, 604 in 2019, 1761 in 2020, 331 in 2021, and only 89 in 2022, respectively.

The third contribution of this study is that it provides the number and types of publications by the journal on the business model. The results show that out of 14,881 articles, 11,034 publications were published in the journal of "*Business Process Management Workshops (BPM 2017)*", which shows the scope of business models in business process management.

Fourth, this study provides a geographical analysis of the business model publications. Studying the authors' regions of affiliation reveals that this research is global since the sample's 14,881 articles are diversified among 19 cities scattered worldwide. This study argues that Cham has the most publications with 12,065 (81.08%) articles, followed by Oxford with 995 (6.69%) articles and Berlin with 599 (4.03%) articles. Since the majority of the business model research publications from 2017 to 2022 were published in Springer-affiliated journals, the Cham region is the high-publisher region among the other 19 cities that highly focus on business models.

Fifth, this study provides information about "publications by organizations", on business models. The results depict that the "Springer International Publishing AG" organization is the publisher which has published more articles related to business models.

Sixth, this study analyzes articles relevant to business models to determine the extent of their citations since it identifies the significant works in the research area. It is possible to determine which articles are most frequently cited in this field. The findings suggest that the articles “*Circular business models: A review*” and “*Sustainable business model innovation: A review*” are the most cited articles among 50 publications from 2017 to 2022, with 157 and 120 cited rates, respectively.

Seventh, the current study analyzes the relevant articles with business models to determine the bibliographic coupling of authors. This might illustrate the relative strength of one publication in comparison to a group of other publications. This method applies to journals, publications, institutions, authors, and regions. It is possible to discover which publications and authors are associated with repeated citations by analyzing the bibliographic coupling of authors.

Future studies may lead to developing and executing more realistic BMs for organizations. This study is further advanced in terms of supporting organizations in identifying opportunities and implementing a business model to obtain information about the target market, needs, and the role that the company’s product and services will play in meeting those needs.

This study has some limitations that must be acknowledged. The first limitation is a non-detailed analysis of the historical development in this field, important to establishing more possible theoretical connections. However, the table of data presented as the most mentioned keywords, number of articles published by type, by year, by geography, by journal, and also the articles with the most citations can be a good starting point for further analysis.

Another limitation can be pointed out of it being a global and not a concept-specific study. Given that the “business model” refers to a specific concept with applications in multiple areas, it is suggested that future studies should segment and analyze in more detail the relationship of business modeling with other scientific areas, to substantiate the interdisciplinary nature of this area of research.

Another possible limitation perceived is that the area of research is very wide which provides general findings, and is not focused on a specific issue of the business model development.

5.2. Policy Recommendations

Businesses are evolving due to the changes in the world regarding technology, climate, and politics. The COVID-19 pandemic has been the evidence of this change which compelled governments to impose lockdowns and close their borders to other countries’ citizens. As a result, many companies have been greatly impacted and compelled to expand their business online.

Since 2015, sustainable development goals (SDGs) have been one of the main focuses of many businesses. These businesses are determined to adopt sustainable business solutions to achieve SDGs. Moreover, technological advancements such as fast internet service, such as 5G, have provided new ways for entrepreneurs to create, share, and promote new ideas from all parts of the globe. Since businesses nowadays focus on sustainability and digitalization, researchers should think outside of the box to develop practical and problem-solving BMs.

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