Scientific Annals of Economics and Business
70 (2), 2023, 301-334
DOI: 10.47743/saeb-2023-0002

Bibliometric Review on the Business Management Field

Tayfun Arar*, Gülşen Yurdakul**

Abstract: The purpose of this article is to review the business management field evolution from 2000 up to date and to map the conceptual, social, and intellectual structure of the research in this field. Data were collected from the WoS database, comprising 12,145 articles published between 2000 and 2022. Several bibliometric techniques were applied, including analysis of co-words, co-citation, bibliographic coupling, and co-authorship networks in addition to performance analysis. VosViewer and the Bibliometrix/Biblioshiny packages were used to perform the analyses. Besides revealing the evolution of the business management field, the results identify the most active and influential authors, articles, journals, and topics in this field.

Keywords: business management; bibliometric analysis; VosViewer; Biblioshiny; Web of Science (Wos).

JEL classification: M10; C88.

* Business Department, Kırıkkale University, Kırıkkale, Türkiye; e-mail: *tayfunarar@kku.edu.tr* (corresponding author).
** Business Department, Kırıkkale University, Kırıkkale, Türkiye; e-mail: *gulsen.yurdakul10@gmail.com*.

Article history: Received 13 August 2022 | Accepted 27 December 2022 | Published online 3 February 2023

To cite this article: Arar, T., Yurdakul, G. (2023). Bibliometric Review on the Business Management Field. *Scientific Annals of Economics and Business*, 70(2), 301-334. https://doi.org/10.47743/saeb-2023-0002

1. INTRODUCTION

Business management gained its systematic and scientific character with the approach that W. F. Taylor (1911) expressed the principles that can provide effectiveness and efficiency in organizations in his work entitled 'Principles of Scientific Management'. These principles, also known as Taylorism, pioneered the Classical Management Approach. The Classical Approach was later developed by Fayol's (1918) 'Management Process Approach', in which he stated the ideal management process and the intricacies of the formal organizational structure. Finally, the 'Bureaucracy Approach', which Weber (1924) expressed as an effective and efficient working order constitutes the last main point in this approach. The classical approach focuses on a closed system that envisages a formal organizational structure such as division of labor, specialization, hierarchical structure, and chain of command to provide effectiveness and efficiency in organizations. Fayol states that if the principles specified in the approach he developed are met, the 'best and correct' organizational structure will be provided (Fells, 2000). One of the main disadvantages of this approach is that the organization treats everything, including labor, as a machine (Bodrožić & Adler, 2018). However, in the 1930s, 'Behavioral Approach to Management', which states that organizations are not 'machines' but 'social' structures by focusing on the importance of the human element in the organizational structure, emerged with Hawthorne Studies under the leadership of Mayo (1949) (Hamner & Organ, 1978; Levinthal, 2011). This view, also known as the Neo-Classical Approach, tries to explain the social and behavioral aspects of the organization with different theoretical approaches (see McGregor, 1960; Likert, 1979) by considering human behavior on both individual and group basis.

By the years of World War II, making the right decisions about how to use resources, methods to be used in production, logistics, and strategy was seen as a prerequisite for surviving in a war environment (N. Anderson *et al.*, 2014; Liao *et al.*, 2019). Quantitative methods such as statistics, physics, operations, and mathematics have contributed significantly to the studies, especially in the United Kingdom, on issues such as the military early warning radar system, submarine dimensions, and accurate determination of the bombing site (D. R. Anderson *et al.*, 2018). After the war, the development of the operational techniques used continued, both in the military and organizational terms, and the foundations of the "Management Science Approach" were settled (Johnson, 1997). In this way, quantitative methods have been used frequently to collect data about an organizational problem or purpose, to create a model, and to produce solutions (B. W. Taylor *et al.*, 2013). The frequent use of quantitative methods has created an interdisciplinary field of study in organizations. In this way, the field of organizational management has expanded even further.

Later, the perspective, which consists of two approaches addressing different points and is generalized as the 'Modern Management Approach', started to develop. The first of these approaches is the 'Systems Approach', which is a holistic mathematical field of study that can adapt to all systems that the biologist von Von Bertalanffy (1950) has been working on for a long time. Rather than relying on a specific discipline or perspective, this approach considers the organization with a holistic perspective and sees organizations as a whole consisting of parts, with internal and external factors (Jackson, 2007). Therefore, the System Approach defines organizations as open systems (Stern & Barley, 1996; Mingers & White, 2010) which both affects and are affected by its internal and external environment. As the second approach of modern management, the 'Contingency Approach' has been adopted, which states that there

is no 'one and the best' organizational structure adopted by the Classical Management approach in organizations and that it will vary according to different situations and conditions (Pugh, 1966). We can say that all the management approaches that have been explained so far confirm the contingency approach. Because each approach is shaped according to the requirements of the conditions it is in (Hatch, 2018). Finally, the 'Post-modern Management Approach' had a perspective that foresees innovations and changes at the macro level in organizations between the 1970s and 2000s. Parallel to the rapid development of technology, it expresses an approach in which concepts such as digitalization, virtual organizational structure, technological collaborations, network organizational structure, information technologies, and information have begun to be adopted in organizations (Lacan, 2019). In addition, a contemporary perspective that foresees maximum quality standards and minimum cost has been brought with approaches such as Total Quality Management and Six Sigma (Spencer, 1994; Qasrawi *et al.*, 2017).

According to Ramos-Rodríguez and Ruiz-Navarro (2004), as a scientific discipline has grown mature enough, researchers generally concentrate their attention on the literature generated by academia to perform literature reviews to assess the state of the art. Business management is one of the fields that have reached maturity in terms of quantity and quality. Bibliometric analysis is one of the methods used in the literature to examine the conceptual, social, or intellectual development of studies in a particular field or on a particular subject. Bibliometric analysis is attracting increasing attention from researchers and is becoming an encouraging field with the spread of information technologies (Bar-Ilan, 2008; Merigó & Yang, 2017; Donthu *et al.*, 2021). The obvious reason for this increased interest is that it provides a systematic and general overview of the vast scholarly literature on a particular discipline (Eck & Waltman, 2014; van Nunen *et al.*, 2018). Bibliometrics is an application that aims to measure the impact of literature reviews and scientific publications and their level of dissemination through quantitative techniques (Cuccurullo *et al.*, 2016; Forliano *et al.*, 2021). In this sense, it offers researchers the opportunity to examine very large data with a high level of rigor, transparency, and reproducibility (Zupic & Čater, 2015; Castillo-Vergara *et al.*, 2018). The bibliometric analysis examines the scientific data in question from a quantitative point of view in a way that helps to organize the knowledge in a specific field (Castillo-Vergara *et al.*, 2018) and lays the groundwork for the analysis of the details of the research topic (Chen & Xiao, 2016). Moreover, bibliometric analyzes that provide access to the details of the research topic can map the characteristics and evolutionary direction of scientific data belonging to a specific field (Li & Hale, 2016; van Nunen *et al.*, 2018). In addition, the performance and collaboration models of authors, journals, and countries can give an idea about the thematic diversity, multidisciplinary character of the research field, and the current developments and development direction of the research field (Waltman *et al.*, 2010; Zupic & Čater, 2015; van Nunen *et al.*, 2018). In addition, the science maps used in bibliometric analysis define the structures that characterize the subject studied conceptually, intellectually, and socially. While the conceptual structure is analyzed as a result of the commonization of keywords that enable the definition of thematic clusters (Merigó & Yang, 2017); the social structure is analyzed as a result of the relationships they have created through the co-authors, and the intellectual structure is analyzed through the references of the documents that most affected the research field in the period included in the research (Forliano *et al.*, 2021).

The evolution of the field of business management, which is tried to be summarized with important points in the first three paragraphs, shows that the field is quite dynamic and suitable for development. Business management, which has been growing like a snowball with new approaches and theories from the past to the present, seems to continue to grow and change. In this context, it is important to take a current picture of business management and to see in which areas the literature continues to develop. In this way, determining the current focal points of business management is important both in terms of following current developments in the field of management and guiding researchers. For this reason, this research aims to see the current position of business management by making a bibliographic examination of business management in the period from 2000 to the present. The main idea is to reveal the development of the research field of business management according to the data collected from the Web of Science (WoS). This study concentrates on the evolution and development of the business management field of research by analyzing articles, authors, journals, and sizeable countries.

In the current literature, to the best of our knowledge, there is not an extended and up-to-date study that covers bibliometric analysis in the business management field. Hereby, this study makes some contributions to the literal development of the business management field. First, it indicates the performance analysis of the field considering annual scientific production, the number of citations, and the most relevant authors, documents, and journals. Second, it describes the conceptual structure through co-word analysis and maps. Third, it identifies the intellectual field by a co-citation analysis of articles and journals. Forth, it identifies and organizes the most up-to-date themes and cutting-edge studies through a bibliographic coupling analysis. Finally, it identifies the social structure of the research field by showing the collaboration ratios of authors and countries. Hence, this article provides scholars with guidance for future research, by highlighting the most prominent contributions on the topic and by identifying the evolution trends in this field of research.

The following sections of this study are as follows: Section 2 describes and explains the steps in the methodology used. In Section 3, the results of performance analysis, co-words analysis, co-citation analysis, bibliographic coupling analysis, and co-authorship analysis are presented. In Section 4 the main conclusions are exposed and in Section 5, discussions about the results and limitations of the study are performed advising to shed light on further research.

2. METHODOLOGY

In this study, bibliometric analysis is conducted. The structure of the research methodology is as follows: (1) clarifying the objectives (2) criteria of data query; (3) tools selection; (4) selection of scientometric analyses; (5) interpreting and discussing the results (Figure no. 1).

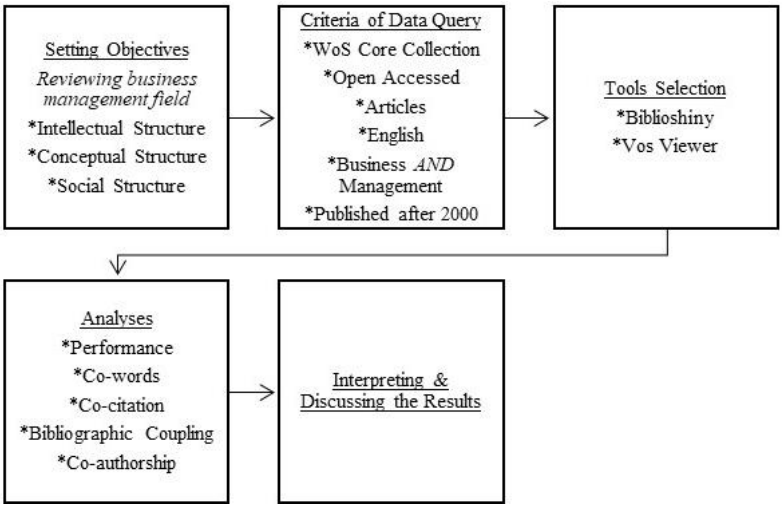

Figure no. 1 – Research Steps

In the first phase as a start point, the research questions are clarified based on the main purpose of the study. In this sense, the first question is (*RQ1*): What is the performance analysis in terms of production and citation of studies in the business management field? & How has the business and management literature evolved so far? The second is (*RQ2*): What is the conceptual structure of the business management field? & What are the specific topics associated with the business management field and how is the evolution of issues? The third one is (*RQ3*): What is the intellectual structure of the business management field? The last one is (*RQ4*): What is the social structure of the business management field?

In the second phase, we gathered data. To do so, we preferred the Web of Science (WoS) Core Collection. Because the Web of Science Core Collection embodies more than 21,000 peer-reviewed, high-quality worldwide journals in coverage of 254 scientific fields with 1,5 billion cited references and 74,8 million records (Clarivate, 2022). Meanwhile, the data query required some criteria, in addition, to being indexed in SSCI and/or SCI-Expanded in WoS Core Collection. The publication type should be a journal article since journal articles are considered verified information (Block *et al.*, 2020). Furthermore, these articles should be open accessed, published in the English language, and should be published after 2000. Moreover, the keyword query as WoS Category is *Business* and *Management* in terms of compatibility with the aim of the study. On July 25th we obtained 12,145 results that meet all these criteria. We downloaded data in both tab-delimited file forms for VosViewer and plain text file forms for Biblioshiny.

In the third phase, bibliometric analysis tools are selected. VosViewer and Biblioshiny software were used to analyze the collected data. Studies are using the combination of VosViewer and Biblioshiny (e.g., Radha & Arumugam, 2021; Singh & Bashar, 2021; Boakye *et al.*, 2022). VosViewer is a software program developed for the visualization of bibliometric maps by Waltman and Van Eck (2012) from Leiden University in the Netherlands. The program is offered to users free of charge at "www.vosviewer.com" (van Eck *et al.*, 2010). This software helps with text mining, the creation of bibliometric maps, and comprehensive visualization of scientific research topics (van Eck *et al.*, 2010). On the other hand,

Biblioshiny was developed by Aria and Cuccurullo (2017) from the University of Naples and Campania in Italy. The most important distinguishing feature of this software is that it is 'non-coding bibliometric' (Moral-Muñoz *et al.*, 2020). In addition, this software program in R language is well organized for bibliometric analysis, and data matrix drafting, and its menu is segmented according to the scientific mapping analysis (SMA) workflow (Aria & Cuccurullo, 2017; Kumar & Goel, 2021). Meanwhile, there are empirical studies that compare tools such as VosViewer and Biblioshiny (see Moral-Muñoz *et al.*, 2020; Ahmi, 2022).

In the fourth phase, several analyses will be conducted. The reason is that the more analyses performed, the more chance to better understand and analyze the relative field. Each analyze has its pros and cons (Zupic & Čater, 2015). Therefore, we did not use a few but the most important ones in this study. In this sense, to see the general situation of the field, we conducted several performance metrics analyses. Moreover, to understand how conceptual, intellectual, and social structures are, we performed co-words analysis, co-citation analysis and bibliographic coupling analysis, and also co-authorship analysis respectively.

Finally, in the last step, the results of analyses are interpreted in the conclusion and discussion part.

3. RESULTS

In this study, 12.145 articles published by 22.711 authors in 84 journals in total between 2000-2022 were scanned. 1069 of these studies have a single author and the international co-authorship percentage is 46.46%. A total of 22.323 keywords were used and the average number of citations to the studies was 38.05.

3.1 Performance Analysis

In this section, to answer the first research question group, performance indicators are provided within the scope of bibliometric analysis.

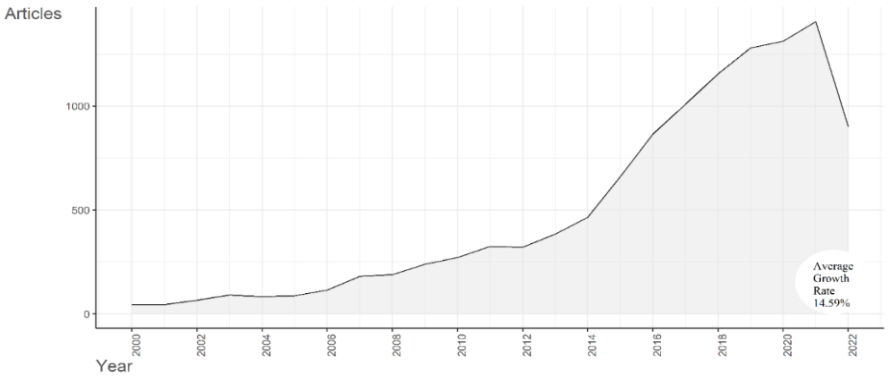

Figure no. 2 – Annual Scientific Production

In Figure no. 2, it is clear that since 2000, the number of publications has risen and it is observed that this upward trend has become steeper, especially since 2014. It can be stated that an important reason for this is that China took the title of "the world's largest economy"

from the USA in 2014 (Morrison, 2019). Because China is increasing global competition even more with its growing economy and cheaper labor advantage (Silagadze *et al.*, 2016). Therefore, as can be seen in Figure no. 7, it is thought that more scientific content has started to be produced for the researchers in the USA, which is registered as the country with the second-highest number of publications and the highest number of citations, for the companies in their countries to develop management strategies compatible with the global competition conditions. We see that the lowest number of publications was conducted in 2000 (n=45) and the highest number of publications was performed in 2021 (n=1406) and the average growth rate is 14.59% in this period. When data is collected, for 2022, there are only 900 articles published. However, considering that the data were collected in July and many journals in the Web of Science published the article in the following years, it is predicted that this number will exceed the previous year.

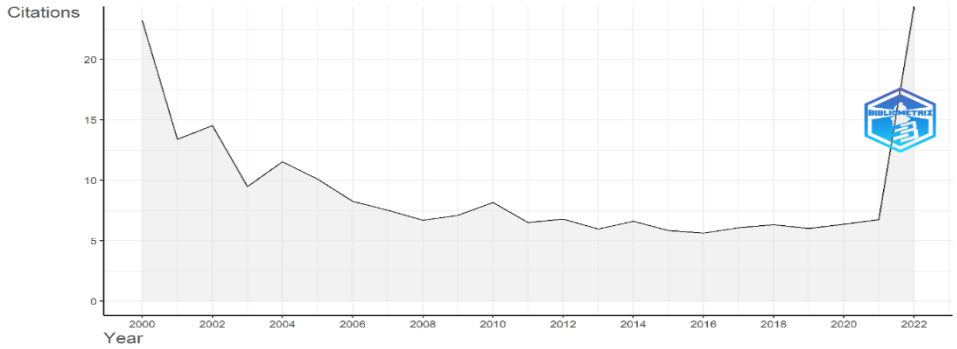

Figure no. 3 – Average Article Citations per Year

In Figure no. 3, the average article citations per year is provided. The citation rate, which started at 23.2% in 2000, hit the bottom at 5.6% in 2016 and started to rise again in the following years. This trend of average citation per year does not seem to match the trend of annual scientific production with an ongoing rise. The reason why this average is more at the beginning arises from the fact that the number of articles was so few in 2000 (n=45). In that year, it is seen that 77.7% of the articles (n=35) are co-authored publications. In addition to common topics studied in the aforementioned year such as competitive advantage, work-family conflict, resource-based view, etc., in terms of content, it is seen that there are also publications beyond their time such as Dyer's and Nobeoka's study (2000) entitled as "*Creating and managing a high-performance knowledge-sharing network: The Toyota case*", published in Strategic Management Journal. The study investigated the importance of knowledge-sharing behavior which has gained importance recently in the literature. Over the years, with an exponentially increasing number of studies with a single author or loss of attractiveness by constantly working on similar topics instead of producing new content being conducted, the citation rate may not have caught the publication production rate simultaneously. Another reason could be due to the small proportion of international collaboration between prominent countries in terms of the number of publications which will be stated in Figure no. 8. This small number of collaborations could result in a low impact on the scientific community in terms of citations (Locatelli *et al.*, 2021).

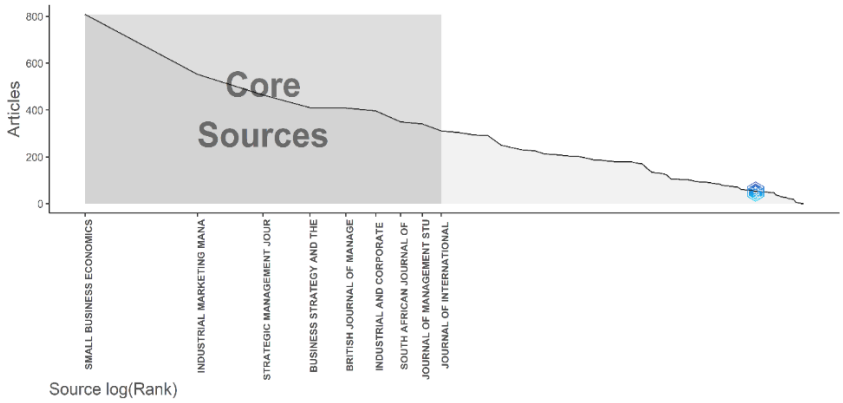

Figure no. 4 – Bradford's Law

In Figure no. 4, Bradford's Law is provided. According to Bradford Law (1985), there are two dimensions in this figure. On axis X there are the journals while on axis Y there is the number of articles. The field that is formed by the interception of these axes is divided into three zones in terms of an equal number of citations. In the first zone, which is also called as core zone, there are a few journals that have the highest citations. In the second zone, more journals exist to access the same number of citations and in the third zone, there are more journals than in the second one (Yang *et al.*, 2016). As we move from zone one to zone three, there is a 'decreased productivity' described by Bradford, known as the 'law of scattering' (Venable *et al.*, 2016). In Figure no. 4, there are 4037 articles in zone 1, core zone, published by 9 journals: Small Business Economics, Industrial Marketing Management, Strategic Management Journal, Business Strategy and the Environment, British Journal of Management, Industrial and Corporate Change, South African Journal of Business Management, Journal of Management Studies, and Journal of International Business Studies. In zone 2 there are 19 journals with 4148 articles and in the third zone, there are 3,960 articles with 56 journals.

Table no. 1 – Most Relevant Journals

Journals	h_index	g_index	m_index	Total Citations	N. of Pub.
Strategic Management Journal	113	231		57,290	443
Academy of Management Journal	99	188	4,304	37,568	290
Small Business Economics	87	147		31,225	749
Journal of International Business Studies	82	153		25,819	297
Journal of Organizational Behavior	77	147	3,348	22,331	209
Journal of Management Studies	74	127		19,427	324
Industrial Marketing Management	70	111	3,043	19,902	518
Journal of Management	66	140		20,496	233
Academy of Management Review	60	102	2,609	19,666	102
Journal of Product Innovation Management	58	101	2,636	11,385	195
British Journal of Management	57	92		12154	375

Journals	h_index	g_index	m_index	Total Citations	N. of Pub.
Administrative Science Quarterly	56	117	2,435	17028	117
Industrial and Corporate Change	53	89	2,524	11380	370
Business Strategy and The Environment	51	81		10025	366
Corporate Governance-An International Review	49	85	2,13	7867	143
Supply Chain Management-An International Journal	49	83		8229	197
California Management Review	46	82	2	7160	125
Long Range Planning	44	92	1,913	9616	197
International Small Business Journal-Researching Entrepreneurship	40	66		6032	208
Academy of Management Annals	39	60	2,438	5495	60

In Table no. 1, the h-index, m-index, and g-index of the top 20 journals are provided. The h-index, a bibliometric measure, was found by Hirsch (2005) and defined as: "a scientist has index *h* if *h* of his/her *N* papers have at least *h* citations each and the other (*N*–*h*) papers have no more than *h* citations each" (Hirsch, 2005, p. 16569). The h-index is seen as an advantage as it measures productivity (number of articles) and impact level (citations to articles) (Walters, 2007). The g-index is expressed as an improved form of the h-index to measure the global citation performance of a series of articles (Moussa & Touzani, 2010). This index is defined by Egghe (2006, p. 131) as "If this set is ranked in decreasing order of the number of citations that they received, the *g*-index is the (unique) largest number such that the top *g* articles received (together) at least g^2 citations". Therefore, it is expressed as the complement of the h-index (Bontis & Serenko, 2009) in that it takes into account both the over-cited outliers that the h-index ignores and the general citation consistency. The m-index is defined by Bornmann *et al.* (2008) as the median of the number of citations received by the articles in the h-core. Due to the skewed distribution of citation numbers, he recommends using the median instead of the m-index arithmetic mean (Bornmann *et al.*, 2008). In Table no. 1, it is seen that although in terms the number of publications is fewer than others, *Strategic Management Journal* is on the first line due to its h-index, g-index, and the total number of citations number followed by *Academy of Management Journal* due to same reasons in the same condition. It is also seen that the most published journal is Small Business Economics with 749 publications. This journal's impact factor (IF) is 2.63 and indexed in Q1 (ScimagoJR, 2021). It is followed by Industrial Marketing Management (IF=2.21, Q1) with 518 publications and Strategic Management Journal (IF=9.44, Q1) with 443 publications. More publication does not mean more citations.

The performance indicators made within the scope of the study so far are related to the resources; the following metrics are about the authors.

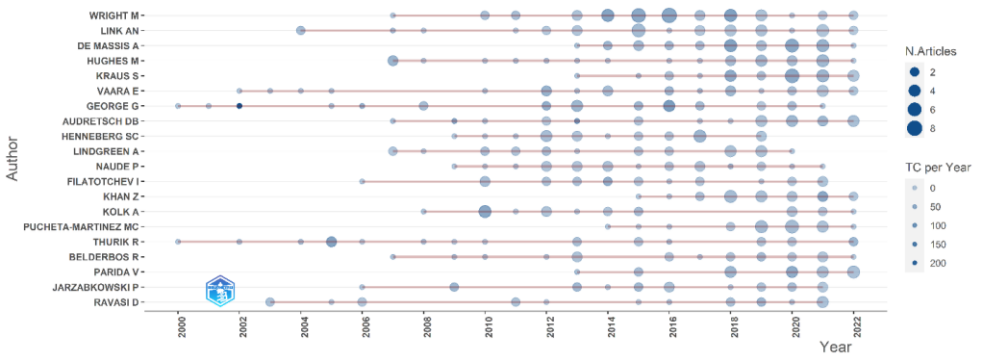

Figure no. 5 – Top 20 Authors' Production over Time

Figure no. 5 shows the publication flow of the 20 most productive authors. While the size of the circles represents the number of articles, the intensity of the color of the circles represents the impact level of the research (Adekunle *et al.*, 2021). In this period (2000-2022), the first articles belong to George and Prabhu (2000) entitled *"Developmental financial institutions as catalysts of entrepreneurship in emerging economies"* published in The Academy of Management Review and von von Gelderen *et al.* (2000) entitled as "*Strategies, uncertainty, and performance of small business startups*" published in Small Business Economics. It is clear that both these "earliest" articles were about entrepreneurship which is the basic topic (see Figure no. 14) and a relatively past time but still an interesting issue (see Figure no. 13). On the other hand, the most current articles are published by many authors. Among them, the greatest number of articles belong to Parida (n=5; TCPY=17) while the greatest total citation per year (TCPY) belongs to Thurik (n=35) with two publications. The first of Thurik's study (2022) with Belitski, Guenther, and Kritikos is entitled "*Economic effects of the covid-19 pandemic on entrepreneurship and small businesses*" and the other is entitled "*Risk of burnout in French entrepreneurs during the covid-19 crisis*". Both were published in Small Business Economics. As it is seen here while entrepreneurship is still an interesting topic in 2022, covid-19 has its popularity (see Figures no. 11, no. 13, and no. 14) which has begun since 2019 when the pandemic started. Moreover, topics related to technology and digitalization mentioned in Sjödin, Parida, and Visnjic's study (2022) entitled "*How can large manufacturers digitalize their business models? Framework for orchestrating industrial ecosystems*" published in California Management Review and, Thomson, Kamalaldin, Sjödin and Parida's (2022) study entitled as "*A maturity framework for autonomous solutions in manufacturing firms: The interplay of technology, ecosystem, and business model*" published in International Entrepreneurship and Management Journal indicates that how these topics are more current (see Figure no. 13 and no. 15).

In Figure no. 6 Lotka's Law is provided. According to Lotka's Law (1926), the increasing number of publications is directly proportional to decreasing number of authors who have more publications. It defines the publication frequency of authors in a particular field (Kumar & Goel, 2021). In the figure above, where the line becomes horizontal, it is seen that the number of authors with 10 or more publications is 128 (% 0.056), making a significant contribution to the literature while 22.643 authors have less than 10 articles.

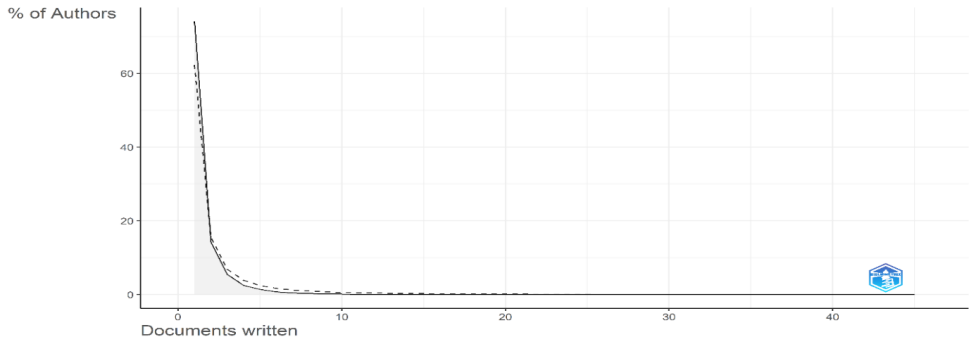

Figure no. 6 – Lotka's Law

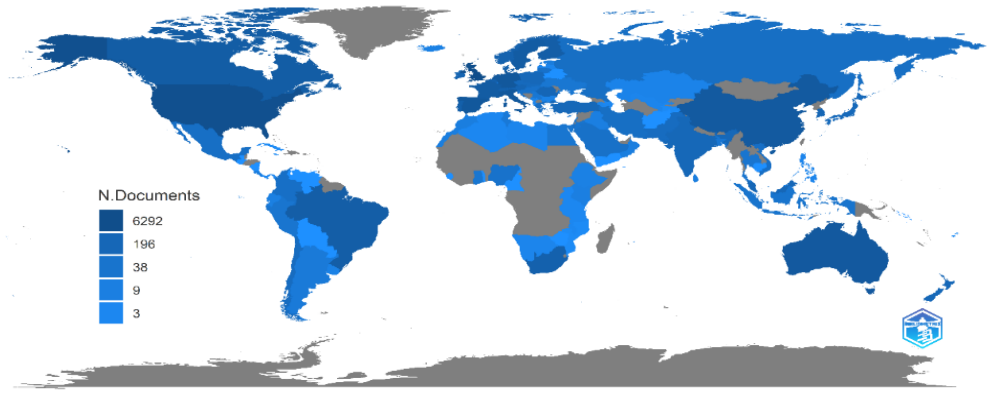

Figure no. 7 – Country Scientific Production

In Figure no. 7 the publication performance of countries is provided. As it gets darker blue, the performance is higher. UK ranks first with 6,292 publications, followed by the USA with 4,509, Spain with 1,668, Netherlands with 1,627, Germany with 1,595, and Italy with 1,575. However, when we look at the number of citations in Table no. 2 of the top 20 countries of total citations and average article citations, it is seen that the USA is ahead of the UK in terms of both total citations by doubling and average article citations by tripling. The Netherlands and Spain also switched places.

Table no. 2 – Country Citation Metrics

Country	Total Citations	Average Article Citations
USA	161,477	102.20
United Kingdom	84,723	33.29
Netherlands	32,640	49.76
Spain	21,147	28.54
Germany	17,985	29.39
Australia	16,816	30.46
Italy	14,242	23.12
Canada	12,802	42.67

Country	Total Citations	Average Article Citations
China	11,469	25.89
Sweden	9,186	24.63
France	8,872	28.90
Switzerland	7,344	41.26
Denmark	6,944	34.55
Finland	6,732	24.48
Belgium	6,290	35.74
Singapore	4,194	41.94
Portugal	3,278	18.84
Norway	2,871	22.97
Ireland	2,696	22.10
Austria	2,672	24.74

In Figure no. 8, the collaboration performance of the top 20 countries is provided. It is seen that the United Kingdom ranks first, followed by the United States of America by far. In this figure, the orange bar represents multiple country productions while the green bar represents single country publications. Spain, Brazil, South Africa, Portugal, and Romania are famous for their publications, usually by authors from a single country in the business management field while Switzerland, Denmark, Canada, France, and China hosted mostly multi-country publications. Meanwhile, in the UK, USA, Netherlands, Italy, Germany, Australia, Sweden, Finland, Belgium, and Norway, this ratio is almost 50%.

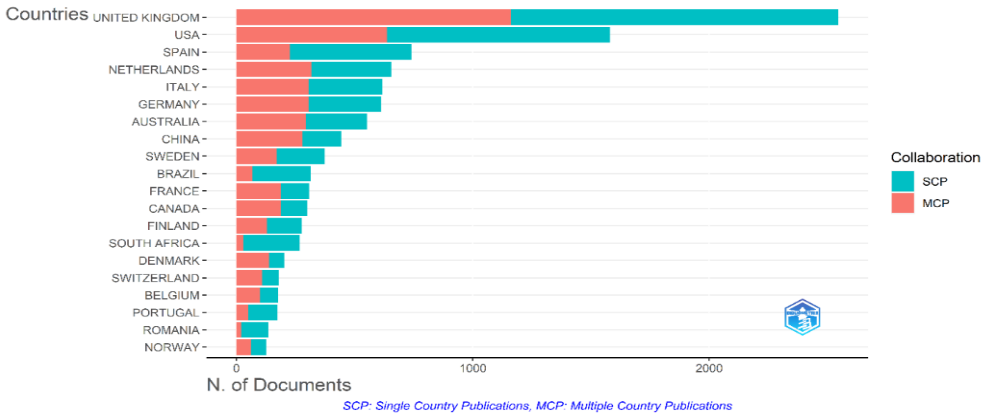

Figure no. 8 – Corresponding Author's Country

The performance indicators made within the scope of the study so far are related to the authors; the following metrics are about the documents.

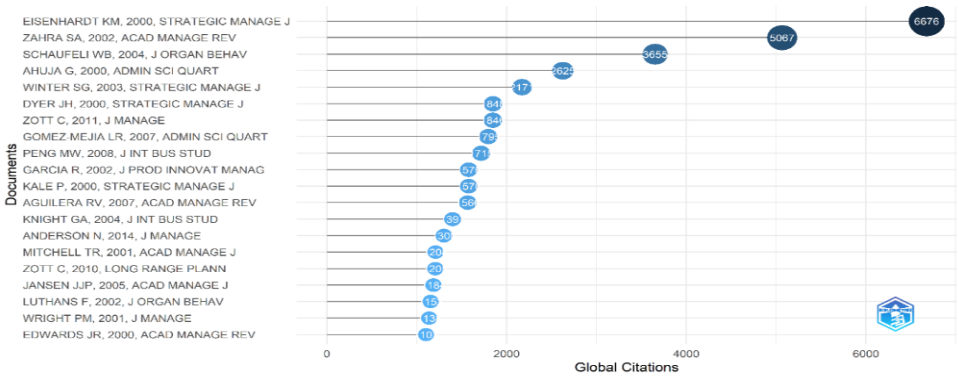

Figure no. 9 – Most Global Cited Documents

In Figure no. 9, the top-most cited 20 articles are provided. When the journals in which these studies are published are examined, it is seen that Strategic Management Journal has the highest number of studies, followed by Administrative Science Quarterly. Checking the top five, in the first place Eisenhardt and Marting's study (2000) whose title is "*Dynamic capabilities: What are they?*" exist. This study is published by *Strategic Management Journal* and cited 6.676 times by the scientific World. It is followed by Zahra and George's study (2002) entitled "*Absorptive capacity: A review, reconceptualization, and extension*". It is published by the *Academy of Management Review* and cited 5.087 times. In the third place, Schaufeli and Bakker (2004) study entitled "*Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study*" exists. It is published in the *Journal of Organizational Behavior* and cited 3.655 times. After then Ahuja's study (2000) comes which is entitled "*Collaboration networks, structural holes, and innovation: A longitudinal study*", published in *Administrative Science Quarterly* and cited 2.625 times. Finally, Winter's study (2003), entitled "*Understanding dynamic capabilities*" is published in *Strategic Management Journal* as cited 2.164 times by other scientific products. One of the common reasons why these five studies have reached such a high number of citations is that they were published in the first years of the sample. However, it is also important that the nature of the subjects they deal with and that there are collaborative studies in general.

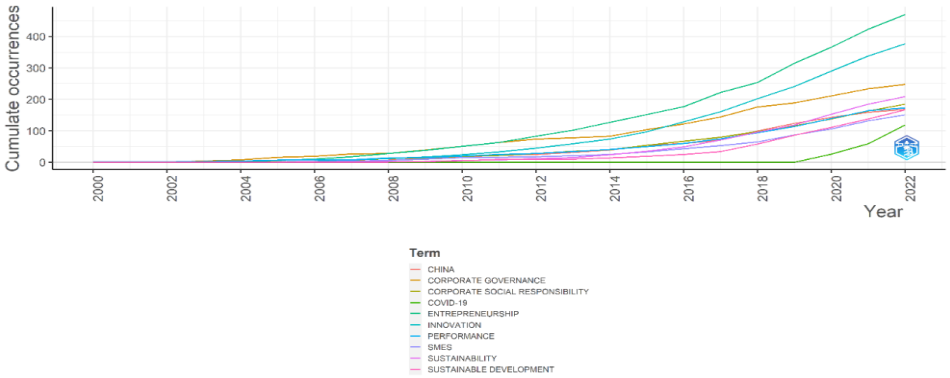

Figure no. 10 – Word Growth Graph

In Figure no. 10, 10 cumulatively most occurred words exist. It is seen that *entrepreneurship* and *innovation* steeply rises from 2008 through 2022. *Covid-19*, on the other hand, started to occur in 2019 when the pandemic was declared.

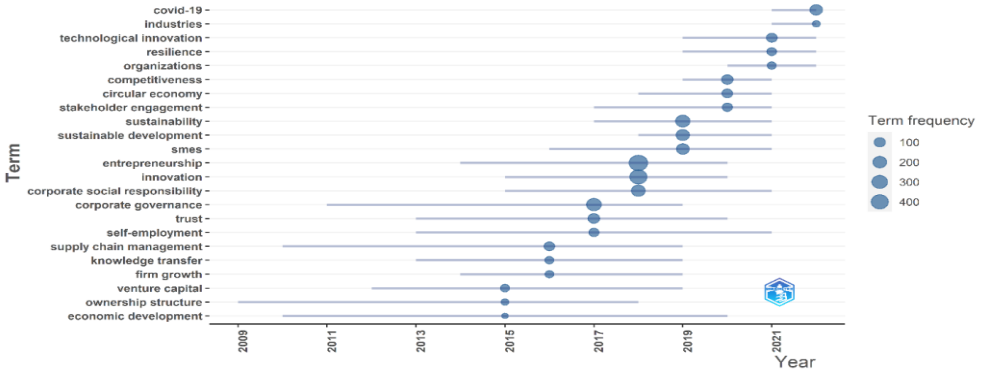

Figure no. 11 – Trend Topics in Business Management Field

In Figure no. 11, the minimum occurrence of keywords was set as 30. It is observed that while economic development, ownership structure, and venture capital were popular in 2015, supply chain management, knowledge transfer, and firm growth took their place in 2016. In 2017 the popular topics were corporate governance, trust, and self-employment, in 2018 they were entrepreneurship, innovation, and corporate social responsibility, and in 2019 they were SMEs, sustainability, and sustainable development. When it comes to 2020, they became stakeholder engagement, circular economy, and competitiveness, and what was popular in 2021 is covid-19 and technological innovation.

3.2 Conceptual Structure

In Figure no. 12, network visualization of co-occurrence of keywords analysis is performed. Due to the sample size, we preferred to set the minimum occurrence as 30. This threshold is mostly set as 5 in studies in which the analysis is conducted on rather a specific topic (e.g., Saini *et al.*, 2022; Zhang *et al.*, 2022). Based on this threshold, a total of 143 words met this criterion. Word elimination was conducted and 116 words which constitute 6 clusters were obtained. In the first and red cluster, which is called *current issues of business firms* and where sustainability is most studied, 41 items are existing such as covid 19, artificial intelligence, blockchain, business model innovation, climate change, competitive advantage, digital transformation, open innovation, new product development, servitization, and value creation. In the second and green cluster, which is called *technology and development* and where innovation is most studied, 28 items are existing such as emerging markets, firm growth, intellectual capital, knowledge management, knowledge transfer, learning, mergers and acquisitions, R&D, technology, start-ups, and venture capital. In the third and blue cluster which is called *leader's traits* and where entrepreneurship is most studied, there are 24 items such as social entrepreneurship, self-employment, trust, leadership, motivation, performance, creativity, HRM, sense-making, and satisfaction. In the fourth and yellow cluster which is called *performance* and where corporate governance leads, there are 11 items such as business

performance, firm performance, SMEs, board of directors, and ownership structure. In the fifth and purple cluster which is called *environmental sensitivity* and where corporate social responsibility plays the pioneering role, there are 9 items such as environmental performance, sustainable development, and environmental policy. In the last and aqua colored-cluster which is called *economic advancement* and where competitiveness is most studied, there are three items such as economic growth and economic development.

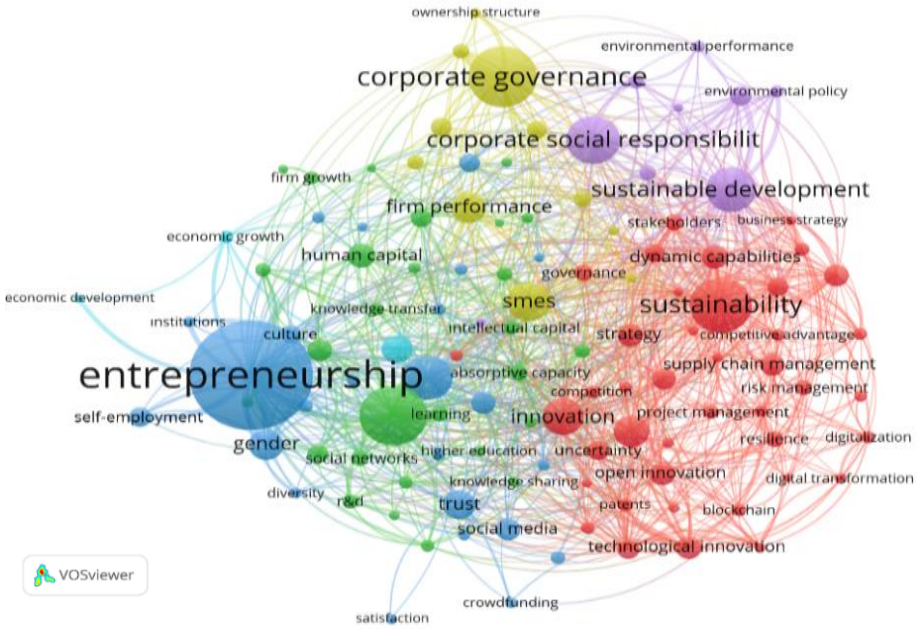

Figure no. 12 – Network Visualization of Keywords

In Figure no. 13, an overlay visualization of the aforementioned data is provided. Checking the last five years, yellow ones are the subjects respectively currently studied while blue ones are studied more in past. Due to the pandemic, and its effects on the global production line and countries' economies, *covid-19*, *competitiveness*, and *sustainable developmen*t have emerged as the most studied topics recently. In addition, thanks to technological development, topics such as *technological innovation, digitalization, business model innovation, artificial intelligence, and blockchain* appear as the most up-to-date issues. On the other hand, while issues such as *supply chain management, knowledge management, economic development, and corporate governance* are relatively past topics, *SMEs, dynamic capabilities, leadership, social capital, diversity, and social entrepreneurship* are still interesting topics.

Figure no. 14 creates the thematic map of the authors' keywords. It refers to the research themes obtained from the conceptual structure of the articles included in the bibliometric analysis. While the circles in the figure indicate the themes of the research, the size of the circles shows the ratio of the relevant theme to the number of keywords (Ragazou *et al.*, 2022; Romero-Perdomo *et al.*, 2022). The upper right quadrant of the graph denotes 'motor themes' with both high intensity and centrality, while the lower right quadrant denotes 'basic themes' with high centrality but low intensity; the upper left quadrant is defined as the research areas

'niche themes' and the lower left region as 'emerging or declining themes' with low centrality and density (Mühl & de Oliveira, 2022). Centrality and density have an important place in the graph. Centrality refers to the intensity of connections with other clusters and therefore expresses the importance of the theme to develop a particular area (Callon *et al.*, 1991; Saini *et al.*, 2022). Density, on the other hand, expresses the strength of the links that connect the words that make up the set and measures the self-improvement capacity of the theme (Callon *et al.*, 1991; Cobo *et al.*, 2011).

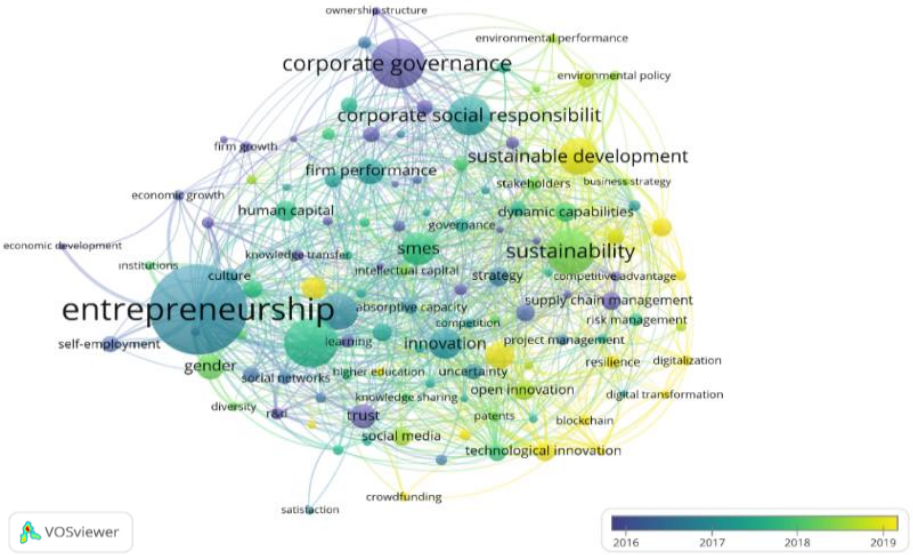

Figure no. 13 – Overlay Visualization of Keywords

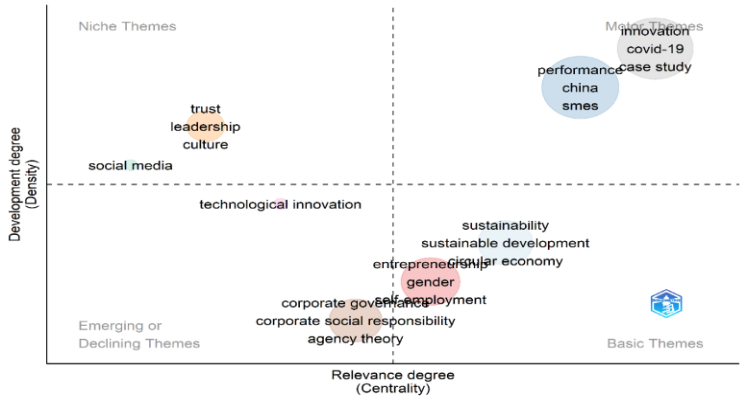

Figure no. 14 – Thematic Map of Authors' Keywords

According to Cobo *et al.* (2011), *Motor themes* are well-developed themes that are important in structuring the research field. In this sense, the terms *'performance*, *SME*, and *innovation'* are highly developed topics in the business management literature and are

frequently addressed with other clusters in the thematic map. However, although *China* is in the 9th place in terms of country contribution to the literature (see Table no. 2), the reason why it is in this field is that it has been studied in a very wide range in the field of business management. Another reason could arise from the fact that China has a 63% rate of multinational studies in the context of author collaboration and the problematic issue of WoS that it is based only on the first author in multi-author studies, and in possible Chinese-based multi-author studies, the word may have been included in the motor theme area since the first author was not Chinese.

In addition, the fact that studies in the field of business management methodologically dealt with relatively narrow samples may also have caused the word *'case study'* to take place in this region. Although it is a new issue, the reason why '*covid-19'* is located in this region is that it has been overworked as a result of the pandemic affecting almost every issue in the field of business management, directly or indirectly. *Basic themes* refer to themes that are important for the field but they are still developing (Callon *et al.*, 1991). The terms such as *'sustainability, sustainable development, and entrepreneurship'*, besides being the main subjects of business management, need to be constantly developed for the organizations interacting with their environment to adapt to the changing environmental conditions so that these phenomena can continue to exist. *Emerging or declining themes* are those that are losing their impact in terms of the field or are just beginning to emerge. It can be stated that 'corporate governance, corporate social responsibility, agency theory' does not have a stable development in the field of business management. However, the 'technological innovation' theme in the same region can be said to be a subject that has started to show its effect in the field of business management due to its higher density. *Niche themes* refer to specific topics in the field. Therefore, these themes are developed in a specific area that constitutes its environment. It can be stated that 'trust, leadership, culture' and 'social media' are clusters that have been studied in specific areas within business management. Since the social media cluster is a newer theme than the leadership and culture cluster, it is seen as a more remote (from the center) and less developed field in the field of business management.

It is seen that the network visualization (Figure no. 12) and the thematic map (Figure no. 14) are compatible with each other because all the themes that appear prominently in the thematic map are also prominently included in the network visualization as clusters. Furthermore, the overlay visualization (Figure no. 13) is also compatible with the thematic map (Figure no. 14) because the themes located in different quadrants according to centrality and density in the thematic map are colored in a way that is compatible with the overlay visualization. For example, the themes in the basic theme area that need to be developed are represented in yellow color representing the newly studied area that needs to be developed in the overlay.

Before going to the next step, we also desired to see the effects of Covid-19 in the evolution of studies. Therefore, we split the studies into two parts (2000-2019) in Figure no. 15 and (2020-2022) in Figure no. 16 to point out how the pandemic affected the literature.

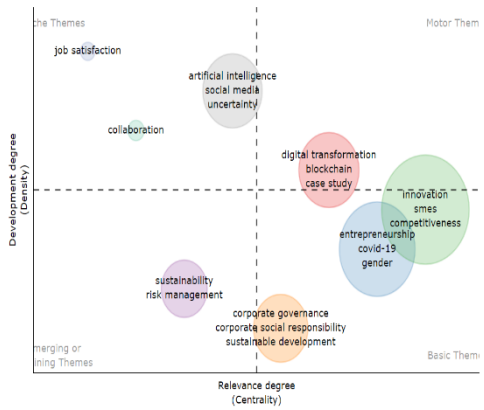

Figure no. 15 – Pre-Covid Analysis

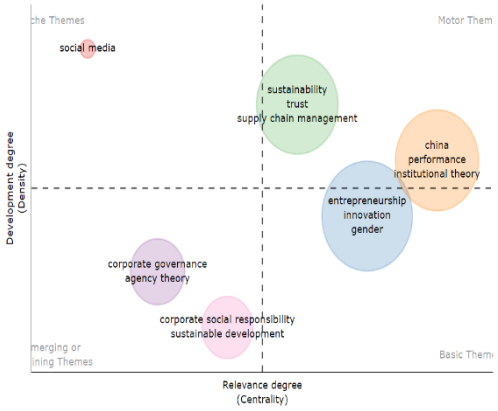

Figure no. 16 – Post-Covid Analysis

For pre-Covid analysis, it is seen that the terms 'sustainability, trust, supply chain management', whose centrality is evident in the *motor theme* section in Figure no. 15, are highly developed topics in the business management literature, especially in terms of the modern period. In addition, these terms are frequently discussed together with other clusters in the thematic map. The terms 'China, performance, institutional theory', which have a more pronounced density feature in this field, are also frequently discussed with other fields of business management. In addition, although 'China' is in the 9th place in terms of country contribution to the literature (see Table no. 2), the reason why it is in this field is that it has been studied in a very wide range in the field of business management, in addition to the issues of multi-authored studies and multinationalism conditions which were mentioned in the discussions for Figure no. 14. In addition to being the main topics of business management, concepts such as 'entrepreneurship and innovation', these facts need to be constantly improved for organizations that interact with their environment to adapt to changing environmental conditions and to survive. In addition, the concept of 'gender' is included in the *basic theme* section. The reason may be due to the necessity of gender-based diversification in research subjects. It can be stated that the term 'social media' in the *emerging or declining themes* section has started to emerge relatively recently in the field of business management and is a subject that has begun to show its effect in the field. In addition, since social media is a current and underdeveloped subject, it is seen that it is located far from the center. Finally, it can be stated that *niche themes*, corporate governance, agency theory, corporate social responsibility, and sustainable development are clusters that are studied in specific areas of business management.

For post-Covid analysis, the terms 'digital transformation, blockchain', which are prominent in the *motor theme* part, especially emphasize the digitalization issue that occurred after Covid-19. The related subject is frequently included in the research carried out to create alternatives for measures such as remote working and isolation brought about by the pandemic process. In addition, the fact that the studies in the field of business management were methodologically conducted with relatively narrow samples may have caused the word 'case study' to be included in this region. As the *basic themes* section deals with “still developing issues”, more than one clustering has emerged. The concepts of 'innovation, SMEs, and competitiveness' express the concepts that gain importance, especially with the pandemic, and which need to be developed to ensure the future and sustainability of the enterprises. Especially

with Covid-19, the fact that SMEs are faced with the danger of extinction, competition has become more difficult in this crisis process and innovation has become compulsory have caused these concepts to be included in the *basic themes*. On the other hand, the terms 'entrepreneurship, Covid-19, gender', which can be expressed as the second cluster, mean that there are issues that need to be developed in almost every subject after the pandemic process. Although the terms 'corporate governance, corporate social responsibility, sustainable development', which is the last cluster in this field, were included in the *niche theme* section in the pre-covid-19 period, it draws attention as it is included in the *basic themes* section in the post-covid-19 period. This situation indicates that institutionalization and sustainability are among the issues that need to be developed and gain importance with the pandemic process. *The emerging or declining themes* section also consists of three separate clusters. The first prominent clustering here is the terms 'artificial intelligence, social media, uncertainty'. In this cluster, issues that started to emerge with the pandemic process and gain importance are realized. Especially the technology-based progress of business, which entered our lives with the pandemic, the digitalization of socialization to protect social distance, and the sense of uncertainty created by the pandemic process has caused these issues to emerge in the field of business management. The other two clusters consist of the terms 'collaboration' and 'job satisfaction'. It can be stated that because they are relatively outworn issues in business management compared to the first cluster, they have begun to lose their relative influence or have begun to be dealt with indirectly. It is seen that 'sustainability', in the *niche themes* section, is among the topics that were specifically addressed in the pre-covid-19 period. However, since 'risk management' is important in terms of business management with the covid-19 process, it can be said that it has started to take place in this field and has been especially addressed in a certain framework.

Lastly, we also wanted to normalize the data as extracting Covid-related keywords to see the pure business management topics studied since 2000, in Figure no. 17.

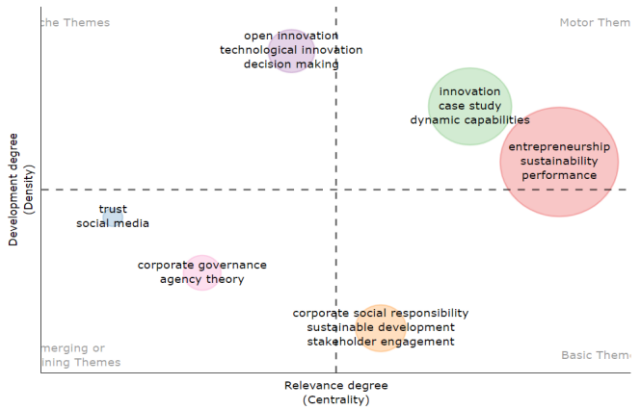

Figure no. 17. Pure Business and Management Topics Thematic Map

Two clusters occur in the *motor theme* part. These consist of advanced basic topics in the field of business management, which are the terms 'entrepreneurship, sustainability, performance' and 'innovation, case study, dynamic capabilities'. The fact that these concepts are not very current concepts based on business management and that they are still studied intensively means that they need to be discussed in detail in terms of business management

and are considered to be of great importance for the field. In addition, the inclusion of the term 'case study' in this section means that the studies in the field are often handled specifically through narrow samples. In the *basic theme*, on the other hand, the terms 'corporate social responsibility, sustainable development, stakeholder engagement' means that they continue to be developed and researched in different aspects of the business management literature. Therefore, in the field, it can be stated that subjects such as institutionalism, sustainability, and participation of stakeholders in the organization constitute the skeleton of modern and post-modern management approaches. In *emerging or declining themes* 'open innovation, technological innovation, and decision-making are the new emerging topics in terms of business management. The fact that the term 'innovation' is an advanced topic in *motor themes* means that the research in this field has been expanded and new topics have been added to the field and the literature has been developed in this sense. In addition, the concept of "decision making" in this section means that different perspectives are tried to be developed in business management. Finally, it is seen that there are two clusters in the *niche themes* section. The first consists of the terms 'corporate governance, agency theory, and these concepts express that the concept of institutionalization and its theoretical infrastructure are discussed in a certain framework in the business literature. The second cluster consists of the terms 'trust, social media'. It shows that both concepts are handled within a specific field in terms of business management. Therefore, it shows that the concepts in the *niche themes* section consist of studies surrounded by a specific area in the business management literature and can be diversified in terms of being far from the center and having a low density.

3.3 Intellectual Structure

Co-citation Analysis is one of the analyses in science mapping which indicates publications that are cited together frequently are on the same theme (Donthu *et al.*, 2021). Here we conduct this analysis for two types of units which are references and journals. Regarding co-citation analysis, two studies exist in the third study's citations, and these two studies are called co-cited (Liao *et al.*, 2018).

It is seen in Figure no. 18, there are 195 references within 7 clusters. In the red cluster, there are 46 items which are led by Jensen and Meckling's study (1976) entitled "*Theory of the firm: Managerial behavior, agency costs and ownership structure*" published in the Journal of Financial Economics. In the green cluster, there are 36 items which are led by Podsakoff's study (2003) entitled "*Common method biases in behavioral research*" published in the Journal of Applied Psychology. In the blue cluster, there are 34 items which are led by Cohen and Levinthal's study (1990) entitled "*Absorptive capacity: A new perspective on learning and innovation*" published in Administrative Science Quarterly**.** In a yellow cluster, there are 30 items led by Eisenhardt's study (1989) entitled "*Building theories from case study research*" published in The Academy of Management Review. In the purple cluster, there are 20 items led by Barney's study (1991) entitled "*Firm resources and sustained competitive advantage*" published in the Journal of Management. In the aqua blue cluster, there are 16 items led by Dyer and Singh's study (1998) entitled "*The relational view: Cooperative strategy and sources of interorganizational competitive advantage*" published in the Academy of Management Review. In the orange cluster, there are 13 items led by Shane and Venkatamaran's study (2000) entitled "*The promise of entrepreneurship as a field of research*" published in the Academy of Management Review. In Table no. 3, there are more details given about the clusters.

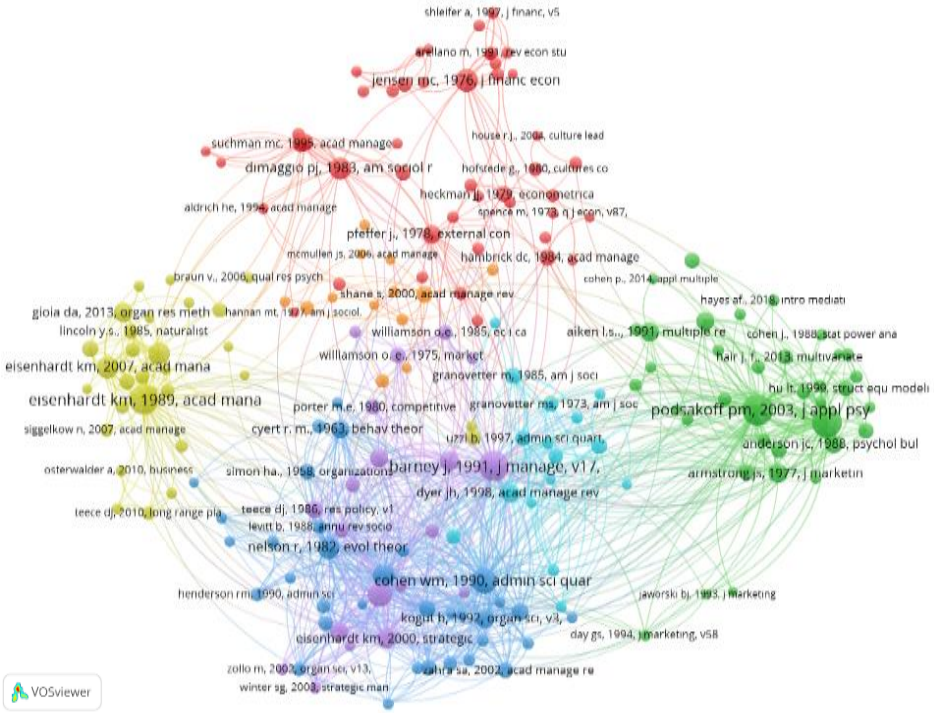

Figure no. 18 – References Co-Citation Analysis (Min N of Citations=100)

Table no. 3 – Cluster Information of References Co-citation Analysis

Cluster	Authors	Year	Journal	Theme	NC	TLS
Red	Jensen & Meckling	(1976)	Journal of Financial Economics	Organizational Behavior	472	1793
	Dimaggio & Powell	(1983)	American Sociological Review		449	2286
Green	Podsakoff	(2003)	Journal of Applied Psychology	Methodology	846	4764
	Fornell & Larcker	(1981)	Journal of Marketing Research		798	4365
Blue	Cohen & Levinthal	(1990)	Administrative Science Quarterly	Organization Management	614	4695
	Nelson & Winter	(1982)	The Business History Review		443	3460
Yellow	Eisenhardt	(1989)	The Academy of Management Review	Case Study	775	3953
	Eisenhardt & Graebner	(2007)	Academy of Management Journal		447	2427
Purple	Barney	(1991)	Journal of Management	Strategic Management	797	5860
	Teece et al.	(1998)	Strategic Management Journal		551	4646
Aqua Blue	Dyer & Singh	(1998)	Academy of Management Review	Economic Structure & Business Strategies	321	2458
	Granovetter	(1985)	American Journal of Sociology		245	1573
Orange	Shane & Venkataraman	(2000)	Academy of Management Review	Competitive Theories	258	1360
	Schumpeter	(1934)	Harvard Economic Studies		174	1010

NC= Number of Citations TLS=Total Link Strength

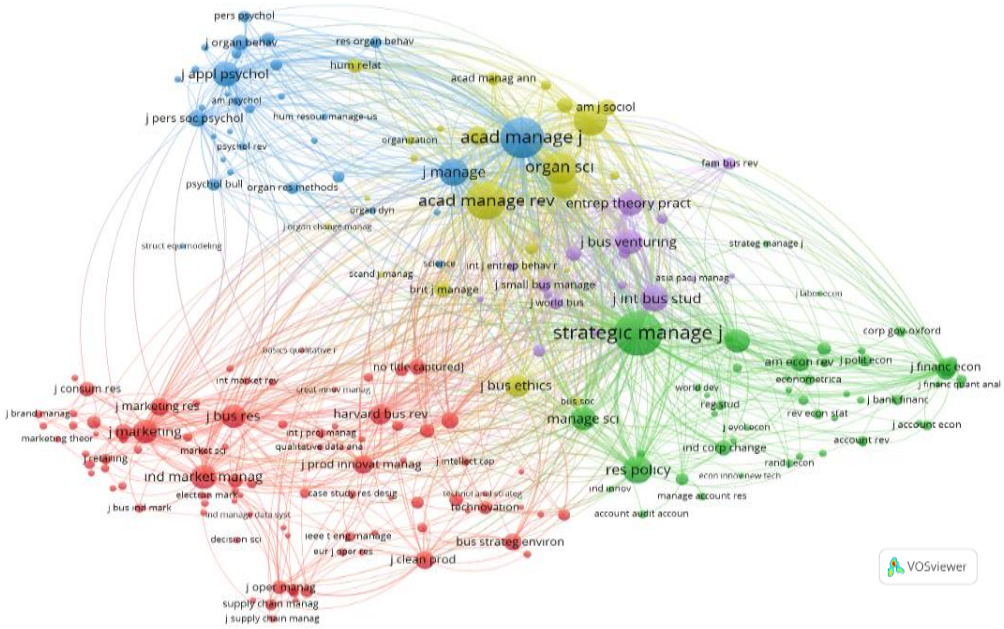

Figure no. 19 – Journal Co-Citation Analysis (Min N of Citation = 500)

In journal co-citation analysis, where the size of the nodes represents the activity of the journal and the distance of two nodes indicates the citation frequency between two journals, the overall structure of the field and the characteristics of journals are indicated (Liao *et al.*, 2018). In Figure no. 19 there are five clusters of 211 journals that have at least 500 citations. It is seen that Strategic Management Journal is the most active one with 29,435 citations followed by Academy Management Journal with 24,079 citations. The red cluster is constituted of 89 journals and is led by Industrial Marketing Management Journal, the journals are related to marketing. In the green cluster constituted of 49 journals and led by Strategic Management Journal, the journals are mostly related to strategic management and financial development. The blue cluster of 33 journals is led by Academy Management Journal, the journals are mostly related to psychology and organizational behavior. In yellow cluster led by Academy Management Review has 22 journals that are mostly related to management. Finally, the purple cluster is led by the Journal of International Business Studies have 18 journals that are related to entrepreneurship and SMEs.

Bibliographic coupling uses the number of references shared by two documents as a measure of similarity between two documents. The more the bibliographies of the two articles overlap, the stronger their connection is**.** The unit was selected as "document" and "fractional counting" was chosen as the analysis method as Perianes-Rodriguez *et al.* (2016) suggested. In Figure no. 20, among 12,145 articles, 288 met the criterion which requires the number of citations should be at least 250. There are 8 clusters formed. The details of clusters are depicted in Table no. 4 with the two most cited journals as representative ones.

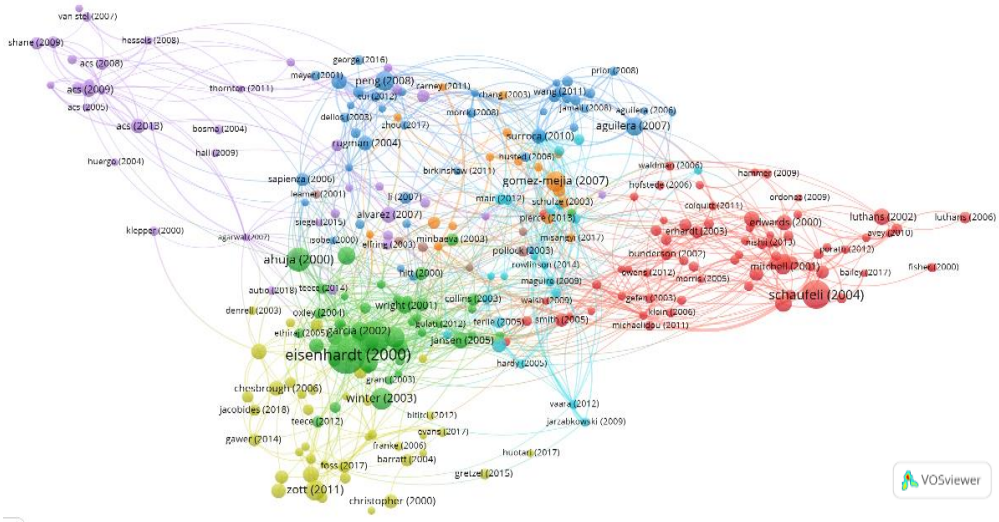

Figure no. 20 – Bibliographic Coupling of Documents (Min N of Citations = 250)

Table no. 4 – Cluster Information of Bibliographic Analysis

Cluster	Authors	Year	Journal	Theme	NC	TLS
Red	Schaufeli & Bakker	(2004)	Journal of Organizational Behavior	Organizational Behavior & HR	3655	21
	Anderson et al.	(2014)	Journal of Management		1300	89
Green	Eisenhardt & Martin	(2000)	Strategic Management Journal	Strategic Management	6676	67
	Zahra & George	(2002)	Academy of Management Review		5067	59
Blue	Peng et al.	(2008)	Journal of International Business Studies	Organizational Management Theories	1715	69
	Aguilere et al.	(2007)	Academy of Management Review		1566	98
Yellow	Zott et al.	(2011)	Journal of Management	Business & Organization Models	1846	44
	Zott & Amit	(2010)	Long Range Planning		1205	23
Purple	Alvarez & Barney	(2007)	Strategic Entrepreneurship Journal	Entrepreneurship	1012	45
	Acs & Sanders	(2013)	Small Business Economics		948	52
Aqua Blue	Gibbert et al.	(2008)	Strategic Management Journal	Innovation	978	13
	Ferlie et al.	(2005)	Academy of Management Journal		604	15
Orange	Gomez-Mejla et al.	(2007)	Administrative Science Quarterly	Performance Management in SMEs	1795	29
	King et al.	(2004)	Strategic Management Journal		675	32
Brown	Pollock and Rindova	(2003)	Academy of Management Journal	Acquisition & Learning	551	21
	Baum et al.	(2000)	Administrative Science Quarterly		417	38,98

3.4 Social Structure

In Figure no. 21, there are 14 clusters of 91 authors. Considering the first five important clusters, in the first (red) cluster Ertuğ with 15 publications, in the second (dark green) one Coad and Foss with 16 publications per each, in the third one (dark blue) George with 23 publications, in the fourth one (yellow) Aguilere with 11 publications and in the fifth one Vaara with 23 publications are in evidence. It is also obvious that Wright plays a prominent role in terms of the number of publications (n=45), despite being in the 10th cluster.

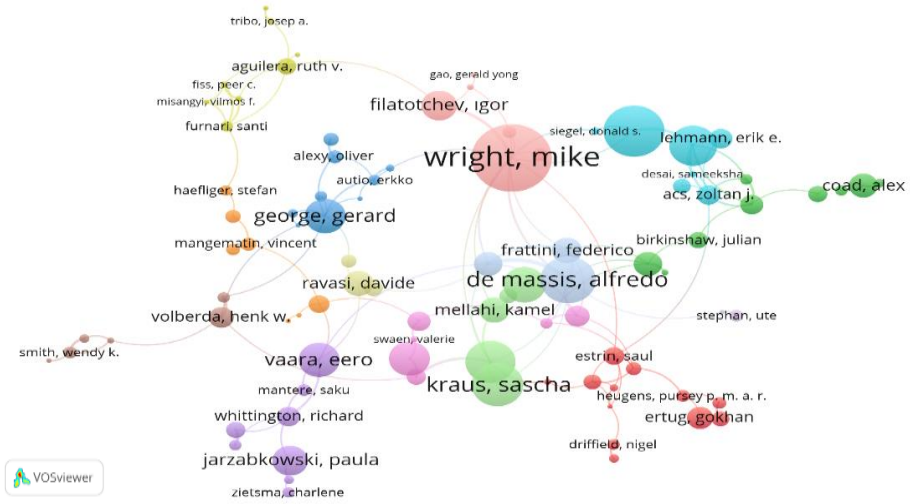

Figure no. 21 – Co-authorship Analysis of Authors (Min N of Pub. = 2; Min N of Cit. = 500)

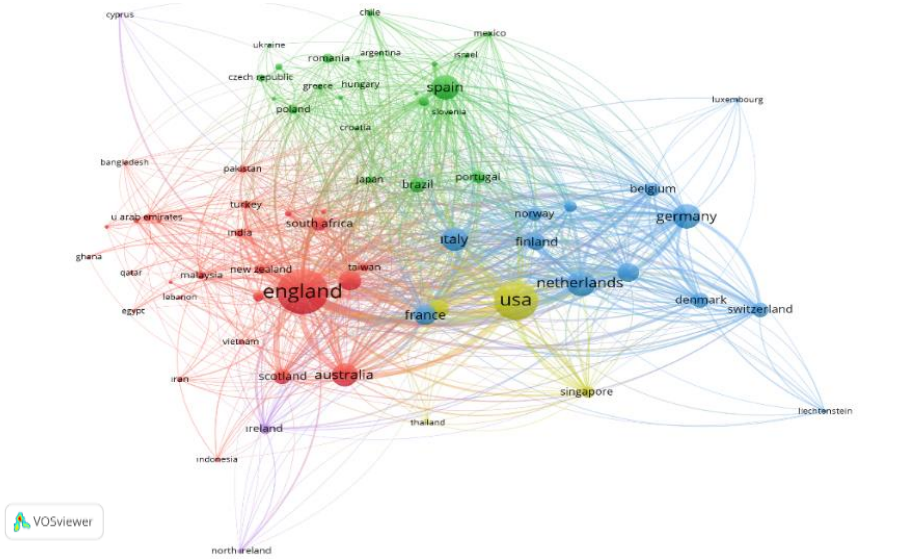

Figure no. 22 – Co-Authorship Analysis of Countries (Min N of Pub. = 10; Min N of Cit. = 100)

As seen in Figure no. 22, five clusters were formed in co-authorship of countries in the business management field in terms of the number of publications. England with 3,565 publications, the USA with 2,653 publications, Spain with 1,057 publications, Germany with 1,026 publications, and Ireland with 193 publications are in evidence in their clusters.

4. CONCLUSION

This study was carried out to see the development of business management since 2000 and to predict which area it has evolved towards, and bibliometric analysis and visualization techniques were used for this purpose. In this context, the articles scanned in WoS were examined and firstly the performance analyses were conducted to see the general view. Then the thematic mapping technique with co-words analysis was applied to measure the conceptual structure. Co-citation and bibliographic coupling analyses were performed to see the intellectual structure. Finally, co-authorship analysis was performed to see the social structure.

As a result of the performance analysis, it was seen that the annual number of publications has increased continuously since 2000, especially in 2014. Considering the average number of citations per article, fluctuations are seen in contrast to the publication graph. It is observed that the fluctuations observed especially until 2014 turned into a horizontal course after 2014. When the 20 most relevant journals in the field of business management are examined, the 'Strategic Management Journal ranks first with 443 publications and 57290 total citations. Considering the top 20 prolific authors, Wright ranks first with 45 studies in terms of the number of publications, while George ranks first with 8755 citations in terms of the number of citations. When the publication performance of the country is examined, the United Kingdom ranks first with 6,292, followed by the USA with 4,509 studies. On the other hand, when the citation numbers are observed, the USA ranks first with an average of 102.2 citations per publication, with a total of 161,477 citations, while the UK ranks second with an average of 33.29 citations and a total of 84,723 citations. When the studies of countries with single and multiple authors are examined, it is seen that EU countries such as Spain, Portugal, and Romania are predominantly SCP, while the rate of MDP is higher in EU countries such as Switzerland, Denmark, and France, as well as Canada and China. In countries such as the UK, USA, Netherlands, Italy, and Germany, which are at the top of the list in terms of the number of publications, these rates are around 50%. When the 20 most cited studies are examined, Eisenhardt and Martin's (2000)'s work, *'Dynamic Capabilities: What Are They*?', which is included in the 'Strategic Management Journal' and has 6676 citations, takes the first place. Furthermore, when we look at the development graph of the most preferred words, it is seen that the words 'entrepreneurship' and 'innovation' are in the first two places and these subjects have been studied frequently since 2008. It is seen that the trendiest topics are 'covid-19' and 'technological innovation'.

As a consequence of the co-words analysis, 116 words most frequently used in the studies were included in 6 clusters "Current Issues of Business Firms", "Technology and Development", "Leader's Traits", "Performance", "Environmental Sensitivity" and "Economic Advance". In addition, as a result of the thematic mapping and overlay visualization, the subjects of 'supply chain management', 'knowledge management', and 'corporate governance' are gradually losing their currency while the subjects of 'SMEs', 'leadership', 'social capital', 'diversity' and 'social entrepreneurship' still constitute the topics that attract the attention of the literature.

As a result of the references co-citation analysis, 195 studies with at least 100 citations from the bibliography of 12,145 studies included in our sample are located in 7 clusters and entitled 'organizational behavior', 'methods', 'organizational management', 'case analysis', 'strategic management', 'economic structure' and 'competitive theories'. Moreover, based on the journal co-citation analysis, the journals included in the bibliography of 12145 studies included in our sample were examined, and 211 journals were obtained that met the criteria of having at least 500 citations. These obtained journals were collected in 5 clusters, and Strategic Management Journal is at the top of the list with 29,435 citations. The first cluster is about 'marketing' and the most active journal of the cluster is 'Industrial Marketing Management'. The second cluster, led by the Strategic Management Journal, is generally about 'strategic management and financial development'. The third cluster, led by the Academy Management Journal, is about 'psychology and organizational behavior'. The cluster in which Academy Management Review ranks first is among the journals in the field of 'management' while the cluster in which the Journal of International Business Studies ranks first is about 'entrepreneurship and SMEs'.

In the wake of bibliographic coupling analysis, 288 studies that reference some of the 12,145 studies in our sample in their bibliography and which have at least 250 citations were found. These studies include 8 themes including 'organizational behavior and HR', 'strategic management', 'organizational management theories', 'business and organizational models', 'entrepreneurship', 'innovation', 'performance management in SMEs', and 'acquisition and learning'.

According to the co-authorship analysis of the authors, a total of 91 authors with at least 2 publications and at least 500 citations were distributed in 14 clusters. While the most prolific among the authors was 'Mike Wright', the most active author in the cluster with the largest number of authors was 'Gökhan Ertuğ' with 15 publications. Finally, when we look at the co-authorship analysis of the countries, the countries with at least 10 publications and 100 citations were included in 5 clusters. England is the first with 3,565 publications, while the USA follows closely with 2,653 publications.

5. DISCUSSION

According to the annual scientific production graph, the performance structure of business management generally has a dynamic and constantly developing structure. The performance analysis confirms the thoughts that the field of business management continues to develop and evolves into topics such as technologic innovation, sustainability, entrepreneurship, and performance. The fact that the concepts of sustainability and performance are a subject that has been accepted and should be provided by businesses from the very beginning, the importance of entrepreneurship in creating new areas, and the sale of knowledge to other businesses in the form of know-how by using it in a way that will create a competitive advantage, makes these issues mentioned frequently in academic studies. In particular, sustainability has been examined with different approaches in the literature on how it can be achieved with changing environmental conditions. The concept of sustainability, whose importance has been increasing continuously since 2000, has increased the importance of the business in the last 3 years, especially in extraordinary situations such as pandemics, and it will continue to increase in the face of many global problems that will be encountered in the future. Especially with Covid-19, which caused a global crisis in 2019, many businesses

had difficulty in retaining their existing workforce or supplying the potential, producing, marketing, or distributing their services or goods, and their sustainability was endangered. In this context, in the literature, Covid-19 has been discussed with many business management issues and has emerged as a shining subject. The efforts of the organizations experiencing the pandemic to develop flexible strategies to make quick decisions and produce alternative solutions in times of crisis will shed light on strategic management and crisis management for future researchers. However, although its effect has started to revive with new variants in recent days, the effect of the pandemic will pass soon and the concept will gradually fade from the studies. Although the concept of Covid-19 will fade, the concept of remote working, which is forced during the pandemic period, is the result of technological developments such as artificial intelligence, led by technological innovation, since its feasibility has been tested and its acceptability is high because it reduces costs and increases efficiency in many sectors, it is anticipated that this effect will be discussed more in the coming periods. Furthermore, the effect of the exponential development of technology on business life, business relations, and employee behavior in organizations is another issue that we think will attract the attention of researchers. With the increase of globalization, which we see the negative impact of such as the rapid spread of the virus during the pandemic, it is expected that new business models will be produced in businesses in a way to create international cooperation networks that will benefit all parties in extraordinary and ordinary situations. It is estimated that digital competition, which will increase with the development of technology, will prompt researchers to work on these issues.

So much so that with the increase of artificial intelligence from a futuristic point of view, together with robotized machines that replace human beings (large companies providing online shopping services only use robots instead of humans in their distribution locations, the production of drones, etc.) does business management field evolve to a place where human beings are considered as relatively unimportant just in Taylorism? Moreover, can the transformation of organizations into a form that only exists intangibly and cannot be mentioned as a physical organization, causes organizational structures and management to focus on different issues? Then, by understanding that these robots should interfere with self-management control and emphasizing that emotions and thoughts should come to the fore as in the Hawthorne studies, the unemployment situation that will arise when the work done by people is given to robotized machines and the research to be done to balance the employment policies of the states. does the business management field draw a circle again? Afterward, by understanding that people should interfere with the self-management control of these robots and emphasizing that emotions and thoughts should come to the fore as in the Hawthorne studies, the unemployment situation that will arise when the work done by people is given to robotized machines and the researches to be carried out to balance the employment policies of the states, does the business management field draw a circle again? We will see the answers in future research in the business management field literature.

It is also seen that while the number of publications of the authors increased, the number of citations did not increase at the same rate and even remained horizontal in the form of a plateau in the last decade. Therefore, to increase the impact factor, the authors should publish multi-author and multinational publications while developing new approaches to key issues of business management.

When the 20 most relevant journals in the field are examined, it is seen that the 'Strategic Management Journal ranks first in terms of h-index, g-index, and of total citations, while

'Small Business Economics' and 'Industrial Marketing Management', which have more publications, are ranked 3rd, and 7th respectively. Considering the total number of citations, h-index, and g-index, it is understood that these two journals should give more importance to quality in the new issues they will publish.

As the most prolific authors are investigated, *Wright* ranks 1st in terms of the number of publications and *George* in terms of the number of total citations. The most cited publication by *Wright* is *"Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems*" published in Strategic Entrepreneurship Journal in 2017 (TC=336) while it is "*Absorptive capacity: A review, reconceptualization, and extension"* published in Academy of Management Review in 2002 (TC=5,085) for *George*. Thus, researchers who will study innovation, dynamic capabilities, technology transfer, and co-evolution should pay attention to George's study, and the ones who will study entrepreneurship, start-up, and knowledge creation should pay attention to Wright's study.

As a result of the publication performances of the countries, it is thought that the high scientific productivity in developed countries such as UK and USA, is due to the governmental or non-governmental funds and supports provided to researches that carry out scientific studies. This situation also indicates the degree of importance attached to science in developed countries.

Two of the five most cited studies are about 'Dynamic Capabilities'. Although the subject is not very up-to-date in general, it may need to be developed with different aspects or different perspectives in the literature. However, it is thought that the topics of 'entrepreneurship', 'covid-19', and 'technological innovation' are more contemporary respectively and researchers can focus on these issues as well.

Regarding conceptual analysis results, it is thought that if the researchers focus on the subjects within the scope of the clusters obtained in the network display as a result of the co-word analysis carried out within the scope of the conceptual structure, the subjects in the green and yellow field display in the overlay display, the current effects in their work would be higher. However, while 'performance', 'sustainability', and 'entrepreneurship' were determined as the main and still interesting topics of the literature, 'corporate social responsibility' and 'corporate governance' issues were determined as the topics that started to lose their impact according to the thematic map.

According to the Intellectual structure results, the analysis that will help researchers who want to do research in the field of business management about the literal background of the field they want to work on at the macro scale is the journal co-citation analysis. In the same context, the analysis that will provide more specific guidance is the reference co-citation analysis. On the other hand, a researcher who wants to see a current gap in the literature or to see which topics the research problem is handled with should use bibliographic coupling. The clusters of all three analyzes illustrate the journals or studies in which the relevant field is concentrated. For example, if the subject chosen by the researcher who wants to work in the field of organizational behavior covers the subject of the publications in the red cluster in Figure 18, it is important to examine all the studies in the cluster to understand the background of the relevant subject. However, the researcher who wants to work in the field of strategic management needs to examine the studies in the green cluster in Figure no. 20 to see the current status of the subject he has chosen and to determine which areas are being studied.

Lastly, regarding social structure results, it can be claimed that if any of the important authors of the subject the researcher is working on is included in Figure no. 21, the researcher

should also examine the works of other names in the cluster in which this author is located. Moreover, when the three largest clusters of co-authorship of countries are examined, the red cluster led by England generally includes Arab culture countries (n=27), the green cluster led by Spain generally includes relatively less developed EU countries and countries with Latin American culture (n=23), and in the blue cluster led by Germany, it is seen that there are generally developed EU countries (n=13).

This study has some shortcomings arising from the problems related to software such as ignoring the rest of the authors in multiple-authored studies but the first, benefiting from only one source is WoS. Other limitations consist of the criteria we consider necessary to obtain data. Thus, downloading papers only in English by avoiding the others though they are proportionally small, and analyzing only the articles which were published after 2000 are other limitations. Maybe one of the most important shortcomings could be that we selected Business and Management as a WoS category. If we chose these two issues as a topic instead of WoS categories, we would probably have a larger sample size to analyze. Therefore, it will be possible to obtain more comprehensive analyzes by paying attention to these points in future studies.

ORCID

Tayfun Arar http://orcid.org/0000-0001-6132-1121
Gülşen Yurdakul http://orcid.org/0000-0003-2064-0278

References

Acs, Z., & Sanders, M. (2013). Knowledge spillover entrepreneurship in an endogenous growth model. *Small Business Economics, 41*(4), 775-795. http://dx.doi.org/10.1007/s11187-013-9506-8

Adekunle, S. A., Aigbavboa, C. O., Ejohwomu, O., Adekunle, E. A., & Thwala, W. D. (2021). Digital transformation in the construction industry: a bibliometric review. *Journal of Engineering, Design and Technology*. http://dx.doi.org/10.1108/JEDT-08-2021-0442

Aguilera, R. V., Rupp, D. E., Williams, C. A., & Ganapathi, J. (2007). Putting the S Back in Corporate Social Responsibility: A Multilevel Theory of Social Change in Organizations. *Academy of Management Review, 32*(3), 836-863. http://dx.doi.org/10.5465/amr.2007.25275678

Ahmi, A. (2022). *Bibliometric Analysis using R for Non-Coders: A practical handbook in conducting bibliometric analysis studies using Biblioshiny for Bibliometrix R package*.

Ahuja, G. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly, 45*(3), 425-455. http://dx.doi.org/10.2307/2667105

Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal, 1*(1-2), 11-26. http://dx.doi.org/10.1002/sej.4

Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2018). *An introduction to management science: quantitative approach*: Cengage learning.

Anderson, N., Potocnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management, 40*(5), 1297-1333. http://dx.doi.org/10.1177/0149206314527128

Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics, 11*(4), 959-975. http://dx.doi.org/10.1016/j.joi.2017.08.007

Bar-Ilan, J. (2008). Informetrics at the beginning of the 21st century—A review. *Journal of Informetrics, 2*(1), 1-52. http://dx.doi.org/10.1016/j.joi.2007.11.001

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120. http://dx.doi.org/10.1177/014920639101700108

Baum, J. A. C., Li, S. X., & Usher, J. M. (2000). Making the next move: How experiential and vicarious learning shape the locations of chains' acquisitions. *Administrative Science Quarterly, 45*(4), 766-801. http://dx.doi.org/10.2307/2667019

Belitski, M., Guenther, C., Kritikos, A. S., & Thurik, R. (2022). Economic effects of the COVID-19 pandemic on entrepreneurship and small businesses. *Small Business Economics, 58*(September), 593-609. http://dx.doi.org/10.1007/s11187-021-00544-y

Block, J., Fisch, C., & Rehan, F. (2020). Religion and entrepreneurship: A map of the field and a bibliometric analysis. *70*(December), 591-627. http://dx.doi.org/10.1007/s11301-019-00177-2

Boakye, E. A., Zhao, H., & Ahia, B. N. K. (2022). Emerging research on blockchain technology in finance; conveyed evidence of bibliometric-based evaluations. *The Journal of High Technology Management Research, 33*(2), 100437. http://dx.doi.org/10.1016/j.hitech.2022.100437

Bodrožić, Z., & Adler, P. S. (2018). The evolution of management models: A neo-Schumpeterian theory. *Administrative Science Quarterly, 63*(1), 85-129. http://dx.doi.org/10.1177/0001839217704811

Bontis, N., & Serenko, A. (2009). A follow-up ranking of academic journals. *Journal of Knowledge Management, 13*(1), 16-26. http://dx.doi.org/10.1108/13673270910931134

Bornmann, L., Mutz, R., & Daniel, H. D. (2008). Are there better indices for evaluation purposes than the h index? A comparison of nine different variants of the h index using data from biomedicine. *Journal of the American Society for Information Science and Technology, 59*(5), 830-837. http://dx.doi.org/10.1002/asi.20806

Bradford, S. C. (1985). Sources of information on specific subjects 1934. *Journal of Information Science, 10*(4), 176-180. http://dx.doi.org/10.1177/016555158501000407

Callon, M., Courtial, J. P., & Laville, F. (1991). Co-word analysis as a tool for describing the network of interactions between basic and technological research: The case of polymer chemsitry. *Scientometrics, 22*(1), 155-205. http://dx.doi.org/10.1007/BF02019280

Castillo-Vergara, M., Alvarez-Marin, A., & Placencio-Hidalgo, D. (2018). A bibliometric analysis of creativity in the field of business economics. *Journal of Business Research, 85*(April), 1-9. http://dx.doi.org/10.1016/j.jbusres.2017.12.011

Chen, G., & Xiao, L. (2016). Selecting publication keywords for domain analysis in bibliometrics: A comparison of three methods. *Journal of Informetrics, 10*(1), 212-223. http://dx.doi.org/10.1016/j.joi.2016.01.006

Clarivate. (2022). Web of Science Core Collection. Retrieved from https://clarivate.com/webofsciencegroup/solutions/web-of-science-core-collection/

Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the Fuzzy Sets Theory field. *Journal of Informetrics, 5*(1), 146-166. http://dx.doi.org/10.1016/j.joi.2010.10.002

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly, 35*(1), 128-152. http://dx.doi.org/10.2307/2393553

Cuccurullo, C., Aria, M., & Sarto, F. (2016). Foundations and trends in performance management. A twenty-five years bibliometric analysis in business and public administration domains. *Scientometrics, 108*(2), 595-611. http://dx.doi.org/10.1007/s11192-016-1948-8

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147-160. http://dx.doi.org/10.2307/2095101

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research, 133*(September), 285-296. http://dx.doi.org/10.1016/j.jbusres.2021.04.070

Dyer, J. H., & Nobeoka, K. (2000). Creating and managing a high-performance knowledge-sharing network: The Toyota case. *Strategic Management Journal, 21*(3), 345-367. http://dx.doi.org/10.1002/(SICI)1097-0266(200003)21:33.0.CO;2-N

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, *23*(4), 660-679. http://dx.doi.org/10.2307/259056

Eck, N. J. V., & Waltman, L. (2014). Visualizing bibliometric networks. In Y. Ding, R. Rousseau, & D. Wolfram (Eds.), *Measuring scholarly impact* (pp. 285-320): Springer. http://dx.doi.org/10.1007/978-3-319-10377-8_13

Egghe, L. (2006). Theory and practise of the g-index. *Scientometrics*, *69*(1), 131-152. http://dx.doi.org/10.1007/s11192-006-0144-7

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*(4), 532-550. http://dx.doi.org/10.2307/258557

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), 25-32. http://dx.doi.org/10.5465/amj.2007.24160888

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, *21*(10-11), 1105-1121. http://dx.doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

Fayol, H. (1918). *Administration industrielle et générale: prévoyance, organisation, commandement, coordination, contrôle* (Vol. 2). Paris: H. Dunod et e. Pinat.

Fells, M. J. (2000). Fayol stands the test of time. *Journal of Management History*, *6*(8), 345-360. http://dx.doi.org/10.1108/13552520010359379

Ferlie, E., Fitzgerald, L., Wood, M., & Hawkins, C. (2005). The non-spread of innovations: The mediating role of professionals. *Academy of Management Journal*, *48*(1), 117-134. http://dx.doi.org/10.5465/amj.2005.15993150

Forliano, C., De Bernardi, P., & Yahiaoui, D. (2021). Entrepreneurial universities: A bibliometric analysis within the business and management domains. *Technological Forecasting and Social Change*, *165*(April), 120522. http://dx.doi.org/10.1016/j.techfore.2020.120522

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *JMR, Journal of Marketing Research*, *18*(1), 39-50. http://dx.doi.org/10.1177/002224378101800104

George, G., & Prabhu, G. N. (2000). Developmental financial institutions as catalysts of entrepreneurship in emerging economies. *Academy of Management Review*, *25*(3), 620-629. http://dx.doi.org/10.2307/259314

Gibbert, M., Ruigrok, W., & Wicki, B. (2008). What passes as a rigorous case study? *Strategic Management Journal*, *29*(13), 1465-1474. http://dx.doi.org/10.1002/smj.722

Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. J. L., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risk in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly*, *52*(1), 106-137. http://dx.doi.org/10.2189/asqu.52.1.106

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, *91*(3), 481-510. http://dx.doi.org/10.1086/228311

Hamner, W. C., & Organ, D. W. (1978). *Organizational behavior: An applied psychological approach* (Vol. 1). Dallas, Texas: Business Publications Inc.

Hatch, M. J. (2018). *Organization theory: Modern, symbolic, and postmodern perspectives*: Oxford university press.

Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America*, *102*(46), 16569-16572. http://dx.doi.org/10.1073/pnas.0507655102 PMID:16275915

Jackson, M. C. (2007). *Systems approaches to management*: Springer Science & Business Media.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360. http://dx.doi.org/10.1016/0304-405X(76)90026-X

Johnson, S. B. (1997). Three approaches to big technology: Operations research, systems engineering, and project management. *Technology and Culture*, *38*(4), 891-919. http://dx.doi.org/10.2307/3106953

King, D. R., Dalton, D., Daily, C. M., & Covin, J. G. (2004). Meta-analyses of post-acquisition performance: Indications of unidentified moderators. *Strategic Management Journal, 25*(2), 187-200. http://dx.doi.org/10.1002/smj.371

Kumar, R., & Goel, P. (2021). Exploring the domain of interpretive structural modelling (ISM) for sustainable future panorama: A bibliometric and content analysis. *Archives of Computational Methods in Engineering, 29*(August), 2781-2810. http://dx.doi.org/10.1007/s11831-021-09675-7

Lacan, A. (2019). Think tank: Meaningful management in a postmodern society. *Global Business and Organizational Excellence, 38*(3), 6-10. http://dx.doi.org/10.1002/joe.21917

Levinthal, D. A. (2011). A behavioral approach to strategy - What's the alternative? *Strategic Management Journal, 32*(13), 1517-1523. http://dx.doi.org/10.1002/smj.963

Li, J., & Hale, A. (2016). Output distributions and topic maps of safety related journals. *Safety Science, 82*(February), 236-244. http://dx.doi.org/10.1016/j.ssci.2015.09.004

Liao, H., Tang, M., Li, Z., & Lev, B. (2019). Bibliometric analysis for highly cited papers in operations research and management science from 2008 to 2017 based on Essential Science Indicators. *Omega, 88*(October), 223-236. http://dx.doi.org/10.1016/j.omega.2018.11.005

Liao, H., Tang, M., Luo, L., Li, C., Chiclana, F., & Zeng, X. (2018). A bibliometric analysis and visualization of medical big data research. *Sustainability (Basel), 10*(1), 166. http://dx.doi.org/10.3390/su10010166

Likert, R. (1979). From production-and employee-centeredness to systems 1-4. *Journal of Management, 5*(2), 147-156. http://dx.doi.org/10.1177/014920637900500205

Locatelli, M., Seghezzi, E., Pellegrini, L., Tagliabue, L. C., & Di Giuda, G. M. (2021). Exploring natural language processing in construction and integration with building information modeling: A scientometric analysis. *Buildings, 11*(12), 583. http://dx.doi.org/10.3390/buildings11120583

Lotka, A. J. (1926). The frequency distribution of scientific productivity. *Journal of the Washington Academy of Sciences, 16*(12), 317-323.

Mayo, E. (1949). Hawthorne and the western electric company. *The social problems of an industrial civilisation*, 1-7.

McGregor, D. (1960). Theory X and theory Y. *Organization theory, 358*(374), 5.

Merigó, J. M., & Yang, J. B. (2017). A bibliometric analysis of operations research and management science. *Omega, 73*(December), 37-48. http://dx.doi.org/10.1016/j.omega.2016.12.004

Mingers, J., & White, L. (2010). A review of the recent contribution of systems thinking to operational research and management science. *European Journal of Operational Research, 207*(3), 1147-1161. http://dx.doi.org/10.1016/j.ejor.2009.12.019

Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *El Profesional de la Información, 29*(1). http://dx.doi.org/10.3145/epi.2020.ene.03

Morrison, W. M. (2019). China's economic rise: History, trends, challenges, and implications for the United States. *28*(2/3), 189-242.

Moussa, S., & Touzani, M. (2010). Ranking marketing journals using the Google Scholar-based hg-index. *Journal of Informetrics, 4*(1), 107-117. http://dx.doi.org/10.1016/j.joi.2009.10.001

Mühl, D. D., & de Oliveira, L. (2022). A bibliometric and thematic approach to agriculture 4.0. *Heliyon, 8*(5), e09369. http://dx.doi.org/10.1016/j.heliyon.2022.e09369

Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change*: The Belknap Press of Harvard University Press.

Peng, M. W., Wang, D. Y. L., & Jiang, Y. (2008). An Institution-Based View of International Business Strategy: A Focus on Emerging Economies. *Journal of International Business Studies, 39*(5), 920-936. http://dx.doi.org/10.1057/palgrave.jibs.8400377

Perianes-Rodriguez, A., Waltman, L., & Van Eck, N. J. (2016). Constructing bibliometric networks: A comparison between full and fractional counting. *Journal of Informetrics, 10*(4), 1178-1195. http://dx.doi.org/10.1016/j.joi.2016.10.006

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology, 88*(5), 879-903. http://dx.doi.org/10.1037/0021-9010.88.5.879

Pollock, T. G., & Rindova, V. P. (2003). Media legitimation effects in the market for initial public offerings. *Academy of Management Journal, 46*(5), 631-642. http://dx.doi.org/10.5465/30040654

Pugh, D. S. (1966). Modern organization theory: A psychological and sociological study. *Psychological Bulletin, 66*(4), 235-251. http://dx.doi.org/10.1037/h0023853

Qasrawi, B. T., Almahamid, S. M., & Qasrawi, S. T. (2017). The impact of TQM practices and KM processes on organisational performance. *International Journal of Quality & Reliability Management, 34*(7), 1034-1055. http://dx.doi.org/10.1108/IJQRM-11-2015-0160

Radha, L., & Arumugam, J. (2021). The Research Output of Bibliometrics using Bibliometrix R Package and VOS Viewer. *Humanities (Washington), 9*(2), 44-49. http://dx.doi.org/10.34293/sijash.v9i2.4197

Ragazou, K., Passas, I., Garefalakis, A., & Dimou, I. (2022). Investigating the Research Trends on Strategic Ambidexterity, Agility, and Open Innovation in SMEs: Perceptions from Bibliometric Analysis. *Journal of Open Innovation, 8*(3), 118. http://dx.doi.org/10.3390/joitmc8030118

Ramos-Rodríguez, A. R., & Ruiz-Navarro, J. (2004). Changes in the intellectual structure of strategic management research: A bibliometric study of the strategic management journal, 1980-2000. *Strategic Management Journal, 25*(October), 981-1004. http://dx.doi.org/10.1002/smj.397

Romero-Perdomo, F., Carvajalino-Umaña, J. D., Moreno-Gallego, J. L., Ardila, N., & González-Curbelo, M. Á. (2022). Research Trends on Climate Change and Circular Economy from a Knowledge Mapping Perspective. *Sustainability (Basel), 14*(1), 521. http://dx.doi.org/10.3390/su14010521

Saini, G. K., Lievens, F., & Srivastava, M. (2022). Employer and internal branding research: a bibliometric analysis of 25 years. *Journal of Product & Brand Management*(ahead-of-print). http://dx.doi.org/10.1108/JPBM-06-2021-3526

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*(3), 293-315. http://dx.doi.org/10.1002/job.248

Schumpeter, J. A. (1934). *The theory of economic development*: Harvard Economic Studies.

ScimagoJR. (2021). Scimago Journal & Country Rank. Retrieved from https://www.scimagojr.com

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review, 25*(1), 217-226. http://dx.doi.org/10.5465/amr.2000.2791611

Silagadze, A., Tvalchrelidze, A., Zubiashvili, T., & Atanelishvili, T. (2016). Aspects of China's economic Development. *Ecoforum Journal, 5*(1).

Singh, S., & Bashar, A. (2021). *A bibliometric review on the development in e-tourism research*: International Hospitality Review. http://dx.doi.org/10.1108/IHR-03-2021-0015

Sjödin, D., Parida, V., & Visnjic, I. (2022). How can large manufacturers digitalize their business models? Framework for orchestrating industrial ecosystems. *California Management Review, 64*(May), 49-77. http://dx.doi.org/10.1177/00081256211059140

Spencer, B. A. (1994). Organizasyon modelleri ve toplam kalite yönetimi: bir karşılaştırma ve eleştirel değerlendirme. *Yönetim incelemesi Akademisi, 19*(3), 446-471.

Stern, R. N., & Barley, S. R. (1996). Organizations and social systems: Organization theory's neglected mandate. *Administrative Science Quarterly, 41*(1), 146-162. http://dx.doi.org/10.2307/2393989

Taylor, B. W., Bector, C. R., Bhatt, S. K., & Rosenbloom, E. S. (2013). *Introduction to management science*: Pearson.

Taylor, F. W. (1911). *The Principles of Scientific Management*. New York, London: Harper & Brothers.

Thomson, L., Kamalaldin, A., Sjödin, D., & Parida, V. (2022). A maturity framework for autonomous solutions in manufacturing firms: The interplay of technology, ecosystem, and business model. *The International Entrepreneurship and Management Journal*, *18*(January), 125-152. http://dx.doi.org/10.1007/s11365-020-00717-3

van Eck, N. J., Waltman, L., Dekker, R., & Van Den Berg, J. (2010). A comparison of two techniques for bibliometric mapping: Multidimensional scaling and VOS. *Journal of the American Society for Information Science and Technology*, *61*(12), 2405-2416. http://dx.doi.org/10.1002/asi.21421

van Nunen, K., Li, J., Reniers, G., & Ponnet, K. (2018). Bibliometric analysis of safety culture research. *Safety Science*, *108*(October), 248-258. http://dx.doi.org/10.1016/j.ssci.2017.08.011

Venable, G. T., Shepherd, B. A., Loftis, C. M., McClatchy, S. G., Roberts, M. L., Fillinger, M. E., . . . Klimo, P. J. (2016). Bradford's law: Identification of the core journals for neurosurgery and its subspecialties. *Journal of Neurosurgery*, *124*(2), 569-579. http://dx.doi.org/10.3171/2015.3.JNS15149

Von Bertalanffy, L. (1950). The theory of open systems in physics and biology. *Science*, *111*(2872), 23-29. http://dx.doi.org/10.1126/science.111.2872.23

von Gelderen, M., Frese, M., & Thurik, R. (2000). Strategies, uncertainty and performance of small business startups. *Small Business Economics*, *15*(November), 165-181. http://dx.doi.org/10.1023/A:1008113613597

Walters, W. H. (2007). Google Scholar coverage of a multidisciplinary field. *Information Processing & Management*, *43*(4), 1121-1132. http://dx.doi.org/10.1016/j.ipm.2006.08.006

Waltman, L., & Van Eck, N. J. (2012). A new methodology for constructing a publication-level classification system of science. *Journal of the American Society for Information Science and Technology*, *63*(12), 2378-2392. http://dx.doi.org/10.1002/asi.22748

Waltman, L., Van Eck, N. J., & Noyons, E. C. (2010). A unified approach to mapping and clustering of bibliometric networks. *Journal of Informetrics*, *4*(4), 629-635. http://dx.doi.org/10.1016/j.joi.2010.07.002

Weber, M. (1924). *The theory of social and economic organization*: Simon and Schuster.

Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal*, *24*(10), 991-995. http://dx.doi.org/10.1002/smj.318

Yang, J. M., Tseng, S. F., & Won, Y. L. (2016). A bibliometric analysis on data mining using Bradford's law. *Proceedings of the 3rd International Conference on Intelligent Technologies and Engineering Systems (ICITES2014)*, 613-620. Retrieved from http://dx.doi.org/10.1007/978-3-319-17314-6_78

Zahra, S. A., & George, G. (2002). Absorptive capacity: A Review, reconceptualization, and extension. *Academy of Management Review*, *27*(2), 185-203. http://dx.doi.org/10.2307/4134351

Zhang, F., Wang, H., Bai, Y., & Zhang, H. (2022). A bibliometric analysis of the landscape of problem-based learning research (1981-2021). *Frontiers in Psychology*, *13*(March), 828390. http://dx.doi.org/10.3389/fpsyg.2022.828390

Zott, C., & Amit, R. (2010). Business model design: An activity system perspective. *Long Range Planning*, *43*(2-3), 216-226. http://dx.doi.org/10.1016/j.lrp.2009.07.004

Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future research. *Journal of Management*, *37*(4), 1019-1042. http://dx.doi.org/10.1177/0149206311406265

Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, *18*(3), 429-472. http://dx.doi.org/10.1177/1094428114562629