

Knowledge Evolution of Digital Business Transformation: A Bibliometric Analysis and Emerging Research Trends

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Abstract

The rapid growth of Digital Business Transformation research has led to a significant increase in scientific publications; however, studies mapping the evolution of knowledge, intellectual structure, and emerging research trends remain limited. This study aims to analyze the knowledge evolution of Digital Business Transformation through a bibliometric review and identify future research directions. A descriptive quantitative bibliometric approach was employed using publication data retrieved from the Google Scholar database through Publish or Perish. The search strategy was based on keywords related to Digital Business Transformation, covering publications published between 2022 and 2026. The retrieved records were screened to remove irrelevant and duplicate documents, resulting in 987 publications that met the inclusion criteria. The selected articles were exported in RIS format and analyzed using VOSviewer through keyword co-occurrence analysis, including network visualization, overlay visualization, and density visualization, to identify the intellectual structure, thematic evolution, research maturity, and emerging topics. The findings indicate that the research landscape is still dominated by MSME digitalization, technology adoption, entrepreneurship, social media, and business performance. The overlay analysis reveals a shift from operational technology implementation toward strategic business transformation emphasizing business model innovation and value creation. This study contributes by proposing a Knowledge Evolution Framework and identifying promising future research themes, including Artificial Intelligence, Digital Capability, Digital Ecosystem, Human-Centered Digital Business, and Business Intelligence. These findings provide valuable insights for researchers and practitioners in developing adaptive digital business transformation strategies and future research agendas.

Keywords:

Digital Business Transformation, bibliometric review, knowledge evolution, VOSviewer, emerging research trends, digital transformation.

INTRODUCTION

Digital Business Transformation (DBT) has become one of the most prominent research topics in recent years due to the rapid advancement of digital technologies and their impact on organizational competitiveness. Digital transformation is no longer limited to the adoption of information technology but has evolved into a strategic organizational process involving changes in business models, value creation, organizational capabilities, and digital innovation. This transformation is particularly significant for micro, small, and medium enterprises (MSMEs), which increasingly rely on digital platforms, social media, and data-driven decision-making to enhance business performance and competitiveness (Yunansyah, n.d.). From a theoretical perspective, Digital Business Transformation refers to the integration of digital technologies into organizational processes, business strategies, and value creation activities that fundamentally reshape how organizations operate and compete. As digital technologies continue to evolve, the body of knowledge surrounding Digital Business Transformation also develops through continuous interactions among emerging concepts, research themes, and interdisciplinary perspectives. This dynamic process is commonly described as knowledge evolution, which reflects the progression of scientific understanding over time through the emergence, maturation, and transformation of research themes. Bibliometric analysis provides a systematic approach for examining this evolution by quantitatively mapping scientific publications, intellectual structures, and conceptual relationships within a research field. Through keyword co-occurrence analysis, bibliometric mapping enables researchers to identify dominant topics, thematic relationships, research maturity, and emerging research directions (Camila et al., 2025). Among bibliometric visualization tools, VOSviewer has become one of the most widely adopted software applications because it effectively visualizes relationships among bibliographic elements. VOSviewer offers three complementary visualization techniques. Network visualization identifies conceptual relationships among keywords and reveals the intellectual structure of a research field. Density visualization illustrates the maturity and concentration of research themes, distinguishing well-established topics from relatively unexplored areas. Overlay visualization presents the temporal evolution of research themes, allowing researchers to observe how scientific attention shifts over time and identify emerging research trends. The integration of these visualization techniques provides a comprehensive understanding of knowledge development within Digital Business Transformation (Osei et al., 2023). Although publications on Digital Business Transformation have increased substantially, existing bibliometric studies predominantly emphasize publication trends, citation analysis, or general keyword mapping. Most previous studies focus on technology adoption, digital entrepreneurship, MSME performance, and social media utilization, while limited attention has been devoted to explaining the knowledge evolution, intellectual structure, thematic maturity, and future development trajectory of the field. Consequently, researchers still lack a comprehensive framework that explains how Digital Business Transformation research has evolved and where future research opportunities remain (Gao et al., 2022).

Addressing this gap, the present study aims to analyze the knowledge evolution of Digital Business Transformation through a bibliometric review based on 987 publications retrieved from Google Scholar. Using Publish or Perish and VOSviewer, this study investigates publication trends, keyword co-occurrence networks, thematic density, and temporal evolution to identify mature research themes and emerging topics. Beyond providing bibliometric mapping, this study

contributes by proposing a Knowledge Evolution Framework and developing a Future Research Agenda that supports academics and practitioners in understanding the future direction of Digital Business Transformation research (Truong & Nguyen-duc, 2023). This condition indicates that the research is still oriented towards the implementation aspect, while the study specifically discusses knowledge evolution, intellectual structure, relationships between research themes, and the dynamics of the development of the Digital Business Transformation topic. It is still relatively limited (*View of The Impact of Digital Transformation on Business Models_ A Bibliometric Study.Pdf*, n.d.). As a result, there is no comprehensive picture of the development of this scientific field, making it difficult for researchers to identify mature themes, developing themes, and research opportunities that have the potential to be the focus of future studies (Ponomarenko, 2025).

Based on these conditions, this study aims to analyze the evolution of knowledge about Digital Business Transformation through a bibliometric approach (Gagliardi et al., 2026). Analysis was carried out on publication trends, the structure of the relationship between keywords, the density of the research theme, the development of themes based on the time dimension, and the identification of themes that emerged as emerging research trends (Ponomarenko, 2024). This study uses publication data that has been collected in the research database and analyzed using VOSviewer software through network visualization, density visualization, and overlay visualization. The scope of research is limited to bibliometric analysis so that it does not include hypothesis testing or empirical research on organizations or business actors.

In contrast to previous studies that generally only use bibliometric analysis to describe publication trends or keyword mapping in general, this study focuses on the analysis of the evolution of Digital Business Transformation knowledge through mapping intellectual structures, identifying relationships between research themes, analyzing the dynamics of topic development based on the time dimension, and preparing future research agendas (future research agenda) (Büyükkidik, 2022). This approach is expected to provide a deeper understanding of the direction of development in the field of Digital Business Transformation as well as identify research opportunities that are still open.

The results of this research are expected to make a theoretical contribution in the form of mapping the development of knowledge and intellectual structure in the field of Digital Business Transformation so that it can be a reference for academics in determining research topics that have a high level of novelty (Montazeri et al., 2023). In addition, this research is also expected to make practical contributions for researchers, business practitioners, and policy makers in understanding the development direction of digital business transformation as the basis for the preparation of business development strategies that are adaptive to technological changes and the dynamics of the business environment (Paper, 2024).

The main problem in research on Digital Business Transformation lies not only in the increasing number of scientific publications, but also in the lack of availability of maps that are able to comprehensively describe the development of knowledge (Ueda et al., 2023). Many studies focus on the implementation of digital transformation in various business sectors, especially in micro, small, and medium enterprises (MSMEs), but there is still limited research that explains how scientific structures develop, how relationships between research themes are formed, and how research development is directed in the future. This condition causes researchers to have difficulties in understanding the development of the field of Digital Business Transformation as a whole and identifying research opportunities that have a high level of novelty.

To answer these problems, this study offers a bibliometric approach as a solution that is able to provide a systematic overview of the development of knowledge in the field of Digital Business Transformation. The bibliometric approach was chosen because it is able to analyze scientific publications quantitatively through mapping the relationship between keywords, identifying research themes, and visualizing scientific developments based on the pattern of topic emergence in a certain period. Thus, the results of the analysis not only show the number of publications that have been produced, but also are able to describe the intellectual structure of a research field more objectively.

The problem solving process is carried out through several stages of analysis that complement each other. The first stage is to identify the development of scientific publications to obtain an overview of the growth of research in the field of Digital Business Transformation. This analysis provides information about the tendency to increase or decrease the number of publications so that it can show the level of attention of academics to the field of research.

The next stage is to analyze the relationship between keywords using network visualization. This analysis aims to identify the relationships between research topics so that the main themes that are the focus of attention can be known. The relationship between keywords describes the intellectual structure of a field of science while showing how a concept develops through its connection with other concepts. This information is the basis for understanding the research focus that has developed and the relationships between themes that still have opportunities for further development.

Furthermore, this study utilizes density visualization to identify the density level of each research theme. This visualization allows researchers to distinguish between themes that have been widely studied and themes that are still relatively little researched. Themes that have a high level of density indicate that research in the area has developed quite maturely, while themes with low density indicate that there is a research space that is still open. This information is the basis for determining research opportunities that have a higher level of novelty so that they can make a more significant contribution to the development of science.

In addition, this study also uses overlay visualization to analyze the dynamics of the development of research themes based on the time dimension. This analysis provides an overview of the evolution of research topics, ranging from themes that emerged in the early period to recent themes that are developing. By knowing these development patterns, researchers can understand the direction of the change in research focus and identify trends in topics that are expected to be of concern in the future.

Through the integration of the three analysis approaches, this study produces a more comprehensive mapping of the evolution of Digital Business Transformation knowledge (Taqwiy, 2026). The results of the analysis not only describe the current state of the research, but also identify the intellectual structure of the field of study, the relationship between the research themes, the level of maturity of each topic, as well as new themes that have the potential to be developed. Thus, this research is able to provide a stronger basis in preparing a future research agenda and support the development of more innovative research that is relevant to the dynamics of digital business transformation. In addition to providing academic contributions, the results of this research are also expected to be a reference for researchers, lecturers, students, business practitioners, and policy makers in understanding the direction of the development of Digital Business Transformation so that it can be the basis for the preparation of research strategies, the

development of business innovations, and the formulation of policies that are adaptive to the development of digital technology.

Although research on Digital Business Transformation has undergone significant developments, most previous bibliometric studies have still focused on mapping publication trends, citation analysis, or identifying dominant keywords without integrating knowledge evolution as the basis for further research directions. This research offers a more comprehensive approach by combining the analysis of intellectual structure, the relationship between research themes, the research density, and the dynamics of theme development based on the time dimension (knowledge evolution). The integration of these three perspectives allows this research not only to describe the evolving state of the research, but also to identify mature themes, emerging themes, as well as new themes that still have great opportunities to explore.

The novelty of this research also lies in the preparation of emerging research trends as the basis for formulating a future research agenda in the field of Digital Business Transformation. In contrast to bibliometric mapping which only describes the distribution of publications or the relationship between keywords, this study produces an interpretation of the direction of research development that can be used as a reference in determining future research priorities. This approach provides added value because it is able to connect the results of bibliometric visualization with the development of more strategic research concepts and directions.

In addition, this study views Digital Business Transformation as a field of science that continues to evolve and is not only related to the adoption of digital technology in organizations, but also reflects changes in research paradigms influenced by technological developments, business models, and the dynamics of the digital environment. Therefore, the results of the study not only present a mapping of the current research condition, but also provide an understanding of knowledge evolution which is the basis for identifying new research opportunities that are relevant to the development of digital business transformation (Passas, 2024).

Conceptually, this research resulted in a contribution in the form of a knowledge evolution mapping framework that integrates network visualization, density visualization, and overlay visualization analysis to explain the development of the field of Digital Business Transformation more systematically. The framework is expected to be a reference for academics in identifying research gaps, determining topics that have a high level of novelty, and supporting the development of research that is more adaptive to technological changes and the digital business environment.

METHODS

This study employed a descriptive quantitative approach using a bibliometric review to analyze the knowledge evolution of Digital Business Transformation. Bibliometric analysis was selected because it enables a systematic and objective evaluation of scientific publications by identifying publication trends, intellectual structures, thematic relationships, and emerging research topics through bibliographic metadata. This approach is widely used to map the development of scientific knowledge and to identify research opportunities within a particular field.

The publication data were collected from the Google Scholar database using Publish or Perish (PoP) software. Google Scholar was selected as the primary data source because of its broad multidisciplinary coverage, which includes peer-reviewed journal articles, conference proceedings, books, book chapters, and other scholarly publications. Compared with more restrictive databases, Google Scholar provides wider coverage of Digital Business Transformation studies, particularly

in emerging and interdisciplinary research areas. The literature search covered publications published between 2022 and 2026 using keywords related to Digital Business Transformation.

The retrieved publications were subsequently subjected to a screening and eligibility assessment to ensure the quality and relevance of the dataset. The inclusion criteria comprised: (1) publications discussing Digital Business Transformation or closely related topics; (2) publications indexed in Google Scholar; (3) publications published between 2022 and 2026; and (4) publications containing complete bibliographic information required for bibliometric analysis. The exclusion criteria included duplicate records, publications unrelated to the research topic, documents with incomplete bibliographic metadata, and records that could not be processed using VOSviewer. After applying these criteria, a total of 987 publications were retained as the final dataset for analysis.

The article selection process followed the general principles of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, consisting of four stages: identification, screening, eligibility assessment, and inclusion. During the identification stage, publications were retrieved from Google Scholar through Publish or Perish. The screening stage involved the removal of duplicate and irrelevant records. Subsequently, the remaining publications were evaluated according to the predefined inclusion and exclusion criteria. Finally, the eligible publications were exported in Research Information Systems (RIS) format and imported into VOSviewer for bibliometric analysis. A PRISMA flow diagram is presented to illustrate the publication selection process.

The bibliometric analysis was performed using VOSviewer based on author keyword co-occurrence analysis, which enables the identification of conceptual relationships among research themes and the visualization of intellectual structures within a scientific field. The analysis adopted the Full Counting method with Association Strength normalization (replace with the actual settings used in the analysis). The minimum keyword occurrence threshold was set at [replace with the actual minimum occurrence value], allowing only keywords meeting the specified threshold to be included in the visualization. These parameters were selected to improve the clarity of the bibliometric network while reducing noise generated by infrequently occurring keywords.

Three complementary visualization techniques were employed to analyze the publication dataset. Network visualization was used to identify relationships among keywords and to reveal the intellectual structure of Digital Business Transformation research. Density visualization was conducted to determine the maturity and concentration of research themes by illustrating the relative frequency of keyword occurrence. Overlay visualization was used to examine the temporal evolution of research topics and identify emerging themes that have recently attracted scholarly attention. The integration of these three visualization techniques provided a comprehensive understanding of research development, thematic evolution, and future research opportunities in the field of Digital Business Transformation.

Finally, the visualization results were interpreted using descriptive analysis by integrating the relationships among keywords, thematic density, and temporal evolution. This interpretation enabled the identification of dominant research themes, intellectual structures, mature research areas, emerging topics, and potential future research agendas. Through this analytical process, the study not only maps the current state of Digital Business Transformation research but also explains its knowledge evolution and proposes directions for future investigation.

RESULT AND DISCUSSION

This research aims to map the evolution of knowledge in the field of Digital Business Transformation through a bibliometric approach. The analysis was carried out on scientific publication data obtained using the Publish or Perish software with Google Scholar data sources. The data collection process was carried out using keywords related to Digital Business Transformation in accordance with the scope of the research. All search result data is then exported into Research Information Systems (RIS) format and analyzed using VOSviewer software to obtain visualization of the relationship between keywords and the development of the research theme.

Based on the data selection process, this study used as many as 987 scientific articles published during the period 2022–2026 as an analysis unit. All articles were analyzed using the co-occurrence method based on the co-occurrence of author keywords. This approach allows the identification of conceptual relationships between research topics so that it can describe the intellectual structure and development of the field of Digital Business Transformation in a more systematic manner.

Bibliometric analysis is carried out through three types of visualization, namely network visualization, density visualization, and overlay visualization. The three visualizations complement each other in explaining the characteristics of research development. Network visualization is used to describe the relationships between keywords and form the structure of the research network. Density visualization is used to identify the density level of each research theme so that it can be known which themes have developed and which themes still have research opportunities. Meanwhile, overlay visualization is used to analyze the dynamics of theme development based on the time dimension so that it is able to show the change in the focus of research from year to year.

Overall, the results of the analysis provide an overview of the development of Digital Business Transformation research as shown through the relationship between concepts, the level of maturity of each theme, and the tendency to emerge new themes that have the potential to be the direction of research in the future. The results of the visualization are further explained in detail in the next section.

Table 1. Characteristics of Research Datasets

Components	Remarks
Types of Research	Bibliometric Review
Data Source	Google Scholar
Data Capture Device	Publish or Perish
Analysis Tools	VOSviewer
Format Data	RIS
Number of Articles	987
Publication Range	2022–2026
Unit of Analysis	Author Keywords
Analytical Techniques	Co-occurrence Analysis

The results of the network visualization analysis produced a network map that describes the relationship between keywords based on the frequency of their occurrence in the analyzed publication. Each node represents the keywords used in the study, while the link line shows the co-occurrence relationship between keywords. The larger the size of the node indicates the higher

the frequency of occurrence of a keyword, while the more relationships a node has, the stronger its association with other research themes.

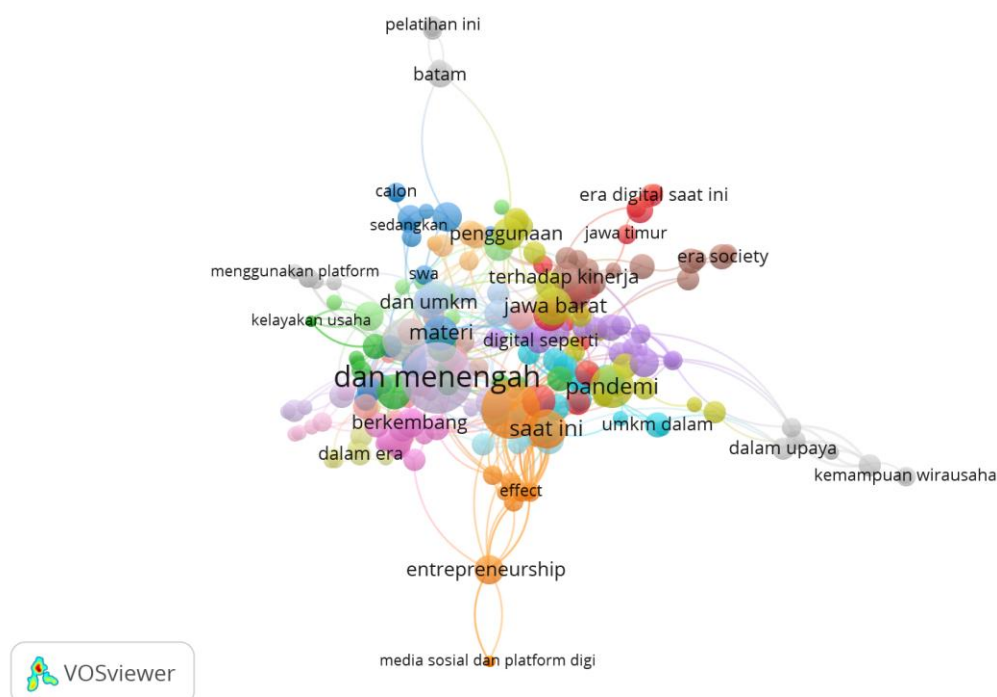


Figure 1. Digital Business Transformation Research Network Visualization using VOSviewer

Based on the results of the visualization, several research clusters were formed that described different study focuses in the field of Digital Business Transformation. Each cluster shows a conceptual connection between keywords that develop simultaneously in a research group. The existence of several clusters indicates that research on Digital Business Transformation is developing in a multidisciplinary manner and covers various interrelated aspects.

The results of the visualization show that the keywords "MSMEs", "usage", "pandemic", "entrepreneurship", "material", "developing", and "towards performance" have a relatively larger knot size than other keywords. This shows that these themes are the main focus in the analyzed research. The large size of the node indicates that research in the field of Digital Business Transformation is still dominated by discussions on the application of digital technology in micro, small, and medium enterprises, the use of digital media, entrepreneurship development, and improving organizational performance through digital transformation.

In addition to having a high frequency of occurrence, some keywords also act as a link between clusters. The keyword "use" seems to have a relationship with various other research groups so that it functions as a bridging node in the research network. This condition shows that the use of digital technology is an element that connects various research themes, ranging from digital entrepreneurship, social media, business development, to improving organizational performance.

Network visualization also shows that the relationships between keywords form a fairly close pattern, which indicates a strong connection between the research topics. However, there are still some nodes that are relatively small in size and are located on the outside of the network. This position shows that these themes still have a low frequency of occurrence so they are not yet the main focus of the research. The existence of these themes gives an indication of the existence of research development opportunities that can be explored in the future.

In general, the results of the network visualization show that the development of Digital Business Transformation research is still dominated by themes related to the digitization of MSMEs, entrepreneurship, the use of digital technology, social media, and improving organizational performance. The strong relationship between keywords illustrates that research develops in an integrated manner and forms mutually supportive intellectual structures. These findings are the basis for analyzing the level of research density on each theme through density visualization presented in the next section.

The development of research on Digital Business Transformation shows that there is a gradual evolution of knowledge in line with the increasing use of digital technology in various business activities. The results of the bibliometric analysis show that the development of this field is not only marked by an increase in the number of publications, but also by a change in research focus that reflects the dynamics of organizational needs, technological developments, and changes in the digital business environment. Thus, the evolution of knowledge is not only understood as the accumulation of research, but as a process of paradigm change that forms a new scientific structure.

The results of the network visualization show that keywords related to MSMEs, technology use, entrepreneurship, business performance, and pandemic still dominate the research network. This dominance shows that research in the early stages is more directed at the use of digital technology to improve operational efficiency, expand market access, and strengthen organizational competitiveness. The strong relationship between keywords shows that digital business transformation develops through the integration of technological aspects, business activities, and organizational capacity building.

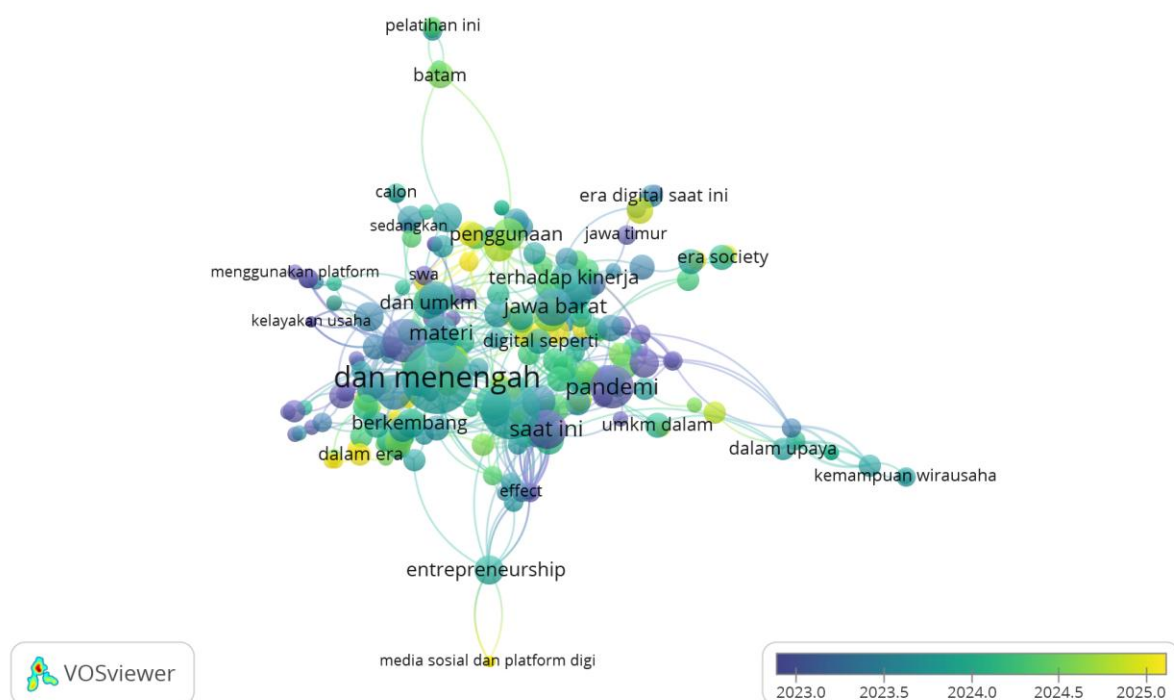


Figure 2 Overlay Visualization using VOSviewer

Meanwhile, the results of the overlay visualization show a shift in research focus from operational themes to more strategic themes. In the early period, the research mostly discussed social media adoption, business process digitization, and digital entrepreneurship. Over time, research began to emphasize the importance of improving organizational performance, innovating business models, and transforming business strategies based on digital technology. This shift

shows that Digital Business Transformation has evolved from just implementing technology to a more comprehensive approach to value creation and increasing organizational competitiveness.

These findings indicate that the evolution of knowledge in the field of Digital Business Transformation takes place through continuous stages. The change in research focus reflects that digital transformation is no longer understood as a mere technology adoption process, but has evolved into an organizational transformation process that integrates technology, business strategy, innovation, and capability development. This condition shows that the field of Digital Business Transformation has entered a more mature phase of development and continues to move towards a more adaptive approach to changes in the digital environment.

The results of the network visualization show that research on Digital Business Transformation forms several clusters that are interconnected and represent the intellectual structure of the field of study. The formation of several clusters shows that research develops in a multidisciplinary manner through the integration of various complementary concepts. This structure shows that the development of research is no longer dominated by one perspective, but develops through the relationship between aspects of technology, organization, entrepreneurship, and performance improvement.

The existence of the keyword used as a bridging node shows that the use of digital technology is the main element that connects various research groups. This shows that digital technology is not only positioned as an operational support device, but has become a strategic factor that influences changes in business models, increased productivity, and the development of organizational innovation. Thus, the intellectual structure formed illustrates that Digital Business Transformation is a field of research that develops through the interaction of various disciplines.

On the other hand, the visualization results also show that some themes are still on the periphery of the network with relatively low levels of interconnectedness. This position indicates that these themes have not yet become the main focus of research so there is still room for development. This condition shows that the intellectual structure of Digital Business Transformation is still dynamic and allows the emergence of the integration of new concepts in the future.

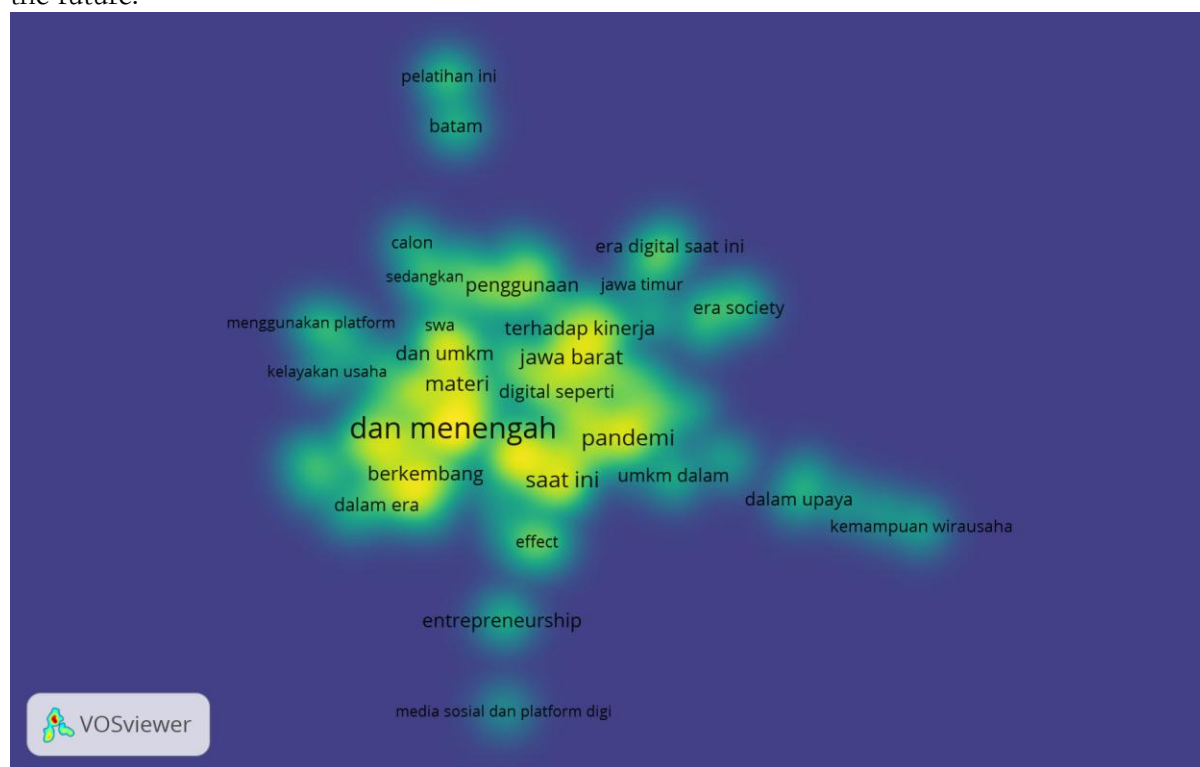


Figure 3 Density Visualization using VOSviewer

The results of the density visualization show that the level of research development in each theme is not at the same level of maturity. Some themes have high levels of density, suggesting that research in the area has developed widely, while others are still at relatively low density. These differences show that the development of the field of Digital Business Transformation still opens up research opportunities on various aspects that have not been explored much.

Themes such as MSMEs, technology use, business performance, digital entrepreneurship, and social media are in areas with high levels of density. This condition shows that research on these themes has developed intensively and formed a relatively mature foundation of knowledge. On the other hand, themes in low-density areas show that there is still a wide scope for research development. These themes have the potential to produce greater scientific contributions because they have not been widely studied in the literature.

Tabel 2. Research Maturity Classification

Mature Research Themes	Emerging Research Themes
MSMEs	Artificial Intelligence
Digital Marketing	Digital Capability
Social Media	Digital Ecosystem
Business Performance	Human-Centered Digital Business
Entrepreneurship	Industry 5.0

The color changes in the visualization overlay show that the focus of the research has shifted from themes that have evolved to new themes that have begun to gain attention in recent years. This shift shows that Digital Business Transformation research continues to adapt to the development of digital technology and the increasingly complex needs of organizations. This condition indicates that the direction of research is no longer only focused on technology implementation, but is beginning to lead to the development of organizational capabilities, business model innovation, and the integration of intelligent technology in business processes. Based on the results of the synthesis, this study identifies several themes that have opportunities to be developed as future research agendas. These themes were chosen based on the low level of research density and the tendency of their appearance in temporal visualization. Thus, the proposed research agenda is not only based on the frequency of keyword occurrences, but also considers the dynamics of the development of the field of Digital Business Transformation as a whole.

Tabel 3. Future Research Agenda

Future Research Topics	Research Opportunity
Artificial Intelligence	Very High
Digital Capability	Height
Digital Ecosystem	Height
Human-Centered Digital Business	Very High
Business Intelligence	Height

This section is the main contribution of the research. In contrast to the results of the VOSviewer visualization which depicts the relationship between keywords, this image is the result of the author's conceptual synthesis based on the overall research findings. This framework explains how knowledge in the field of Digital Business Transformation evolved from an initial focus on digitizing business processes to a more strategic and value-creation-oriented approach.

The framework shows that the development of research does not stop at the implementation of digital technology, but moves towards the development of organizational capabilities, integration of the digital ecosystem, and the use of artificial intelligence as part of sustainable business transformation. Thus, the contribution of this research is not only in the form of mapping the relationship between themes, but also produces a conceptual model that explains

the direction of knowledge evolution and can be used as a basis for the development of subsequent research.

CONCLUSION

This study successfully maps the evolution of knowledge about Digital Business Transformation through a bibliometric review approach. An analysis of 987 scientific publications using the co-occurrence method in the VOSviewer software shows that research developments form interconnected and dynamically developed intellectual structures. The results of the network visualization show that the research is still dominated by themes related to MSMEs, the use of digital technology, entrepreneurship, improving business performance, and the impact of the pandemic. The findings show that digital business transformation is still widely understood as the implementation of technology to improve operational efficiency and organizational competitiveness.

The results of the density visualization show that several themes have reached a high level of research maturity, especially related to the digitization of MSMEs, social media, digital marketing, and entrepreneurship. On the other hand, the results of the overlay visualization show a change in research focus towards more strategic themes, which reflects the development of the Digital Business Transformation paradigm from technology adoption to organizational transformation oriented to innovation, value creation, and business sustainability. These changes show that the field of Digital Business Transformation continues to evolve following the development of digital technology and increasingly complex organizational needs.

The main contribution of this research lies not only in the presentation of bibliometric maps, but also in the preparation of the Knowledge Evolution of Digital Business Transformation framework which explains the stages of research development from the digitization of business processes to a more comprehensive digital business transformation. In addition, this research resulted in the identification of mature themes, themes that are still developing, as well as recommendations for future research agendas as the basis for further research development. Thus, this research makes a conceptual contribution in understanding the dynamics of the development of the field of Digital Business Transformation while providing a reference for academics in determining the direction of research that has a higher level of novelty.

Practically, the results of this research can be used by academics, researchers, and business practitioners to understand the development of the field of Digital Business Transformation and identify research opportunities that are relevant to the development of digital technology. Information about intellectual structure, theme maturity level, and developing research trends is expected to be the basis for the preparation of research strategies, the development of business innovations, and the formulation of policies that support digital business transformation in various sectors.

This research has several limitations. The analysis only uses publications obtained from Google Scholar through the Publish or Perish software so that the results of the research are greatly influenced by the scope and characteristics of the database. In addition, the study only uses co-occurrence analysis through VOSviewer so it has not examined other aspects, such as co-authorship analysis, citation analysis, bibliographic coupling, and co-citation analysis. These limitations open up opportunities for future research to use broader databases, such as Scopus or Web of Science, as well as combine various bibliometric analysis techniques to obtain a more comprehensive picture of the development of Digital Business Transformation.

Based on the results of the research, the future research agenda is directed at the development of themes that still have a low level of research density but show a growing trend, such as Artificial Intelligence, Digital Capability, Digital Ecosystem, Human-Centered Digital Business, Business Intelligence, as well as the integration of smart technology in digital business models. The development of these themes is expected to be able to expand the scope of Digital Business Transformation research while making a greater contribution to the development of science and digital business practices.

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