

# Digital Leadership for Organizational Flexibility: Bibliometric Analysis to Identify Research Trends

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## ABSTRACT

In the dynamic and technologically driven era of Society 5.0, digital leadership emerges as a pivotal force in steering organizational flexibility and success. This paper employs a bibliometric analysis to elucidate the evolution and trends in digital leadership research. By analyzing 338 articles from the Scopus database, focusing on 'digital leadership', we reveal significant insights into how digital transformation and leadership agility interplay to enhance organizational outcomes. Our study highlights the indispensable role of digital leadership in fostering innovation, driving sustainable business practices, and navigating the complexities of modern organizational environments. The findings underscore the necessity for leaders to adapt to digital paradigms and cultivate capabilities that align with the rapid changes in technology and society. This research not only maps the current landscape but also provides a valuable reference for practitioners and researchers interested in the intersection of leadership and digital transformation.

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## 1. INTRODUCTION

Leadership in the Society 5.0 era plays an important role in responding to the complex challenges of an increasingly connected society characterized by the convergence of technology, education, health and entertainment [1]. In this era, where society is seen as a source of innovation, leaders need to manage change, facilitate collaboration, inspire innovation, and build strong relationships in a dynamic context [2]. Technological advances and the integration of physical and virtual spaces require leaders to guide individuals in developing critical thinking, communication, collaboration, and

creativity skills to adapt to the ever-changing landscape of education and society [3]. Additionally, leaders in Society 5.0 need to set an example by embracing technology while providing spiritual and social guidance to navigate the challenges and opportunities presented by an evolving culture and technological advances.

By incorporating human-centered values into these new processes, humans play a central role in decision-making, and society will change flexibly and rapidly for the better.

In the era of Society 5.0, it is important to develop abilities and qualities that can be obtained through exploration activities to find problems and find their own solutions. It is

important to produce human resources capable of creating new value in the world and creating an education and human resource development system capable of making this happen.

Know the importance of leadership roles in preparing the organizations they lead to face the Society 5.0 era. Therefore, organizations need digital leadership.

In the Society 5.0 era, leaders face many challenges. The era of society 5.0 was created by the industrial era 4.0. This era of development is an idea that was initiated as a discussion topic at the World Economic Forum (WEF) in Davos, Switzerland, in early January 2019. According to Japanese Prime Minister Shinzo Abe, the concepts of Industrial Revolution 4.0 and Society 5.0 are not much different. This means that Industrial Revolution 4.0 uses artificial intelligence,

while Society 5.0 focuses on the human component.

Based on the results of studies by Oxford Economics and SAP, organizations that adopt digital leadership tend to be able to get much better business results. This can be seen from the aspects of financial performance, employee satisfaction and decision making.

## 2. METHODS

In this research, the bibliometric analysis method was used. The searched keywords were identified, initial search results, refinement of search results, compilation of initial statistics, and data analysis were used in this research. Some literature states that bibliometric analysis is carried out in five steps as presented in the following figure:

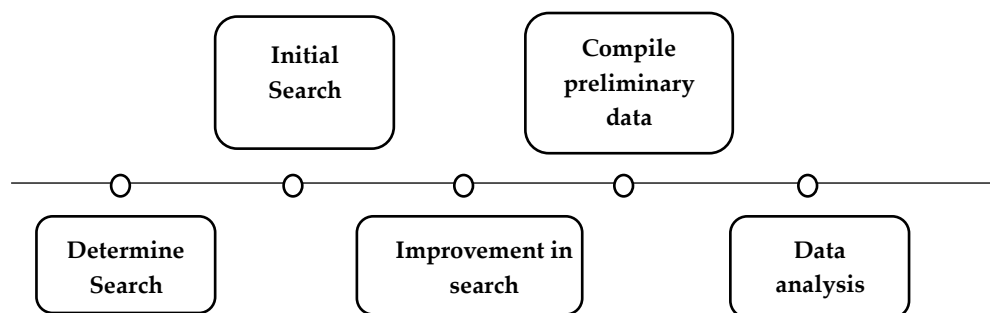


Figure 1. Bibliometric Analysis Steps

And here are the steps for the five stages of bibliometric analysis.

1. Determining keywords. Keywords selection in April 2024, a literature search was carried out with the keyword "digital leadership" and the Scopus (Sc) database was used. Scopus is an international scientific work database that is popular and easily accessible today.
2. Initial Search Results: "Keywords" were used to carry out the initial search, and the number of articles using these keywords was limited to 2,173 from 2022 to 2024. A total of 714 findings were found and stored in the form of a Research Information System (RIS), which contains information such as title, author, affiliation, abstract, keywords, and references.
3. Improvements in search. From 714 data in the Sc database, suitable and indexed articles were selected. We found only 338 suitable articles from the journal data—not including newspapers, books, book reviews, or book chapters. The corrected data were then saved as a RIS file, and the RIS data were imported into Mendeley bibliography software.
4. Compile initial data. The goal is to ensure that all elements involved in a journal article, such as publication year, volume, number, and pages, are present in the updated data.

- Data analysis. This research uses Scopus to collect bibliographic data; however, VoS Viewer is used to view and analyze bibliometric networks and produces interesting visual and analytical results. Additionally, VosViewer can use citation networks and keyword maps to create maps of authors, publications, and journals.

### 3. RESULTS AND DISCUSSION

#### Publications and citations

The previous Scopus data search results consisted of 714 articles; after refinement, 338 suitable articles were found through a comprehensive review of 714 articles.

Furthermore, 338 articles with the keyword "Digital Leadership" and 10 articles with the highest citation value were selected to show the most relevant contributions to this research. The results are presented in the following table.

Table 1. Data Matrix

Description	Results
Sources (Journals, Books, etc)	221
Documents	338
Annual Growth Rate %	-38.28
Document Average Age	1.23
Average citations per doc	7,976
DOCUMENT CONTENTS	
Keywords Plus (ID)	834
Author's Keywords (DE)	1267
AUTHORS	
Authors	1005
Authors of single-authored docs	38

Source: Data processing results (2023)

Table 1 presents the relevant research metrics data for a bibliometric analysis of the relationship between Digital Leadership and

Organizational Agility. These papers have received a total of 7,976 citations during the study period.

Table 2. Highest Citations of Relevant Articles

No	Cites	Authors	Title	Year	Source	Publisher
1	172	Alnuaimi Bk; Kumar Singh S; Ren S; Budhwar P; Vorobyev D [4]	Mastering Digital Transformation: The Nexus Between Leadership, Agility, And Digital Strategy	2022	Journal of Business Research	Elsevier
2	102	Benitez J; Arenas A; Castillo A; Esteves J [5]	Impact of Digital Leadership Capability on Innovation Performance: The Role of Platform Digitization Capability	2022	Information and Management	Elsevier
3	80	Mukhuty S; Upadhyay A; Rothwell H [6]	Strategic Sustainable Development of Industry 4.0 Through the Lens of Social Responsibility: The Role of Human Resource Practices	2022	Business Strategy and The Environment	John Wiley And Sons
4	79	Borah Ps; Iqbal S; Akhtar S [7]	Linking Social Media Usage and Sme's Sustainable Performance: The Role of	2022	Technology In Society	Elsevier

			Digital Leadership and Innovation Capabilities			
5	66	Feliciano-Cestero Mm;Ameen N;Kotabe M;Paul J;Signoret M [8]	Is digital transformation threatened? A systematic literature review of the factors influencing firms' digital transformation and internationalization	2023	Journal of Business Research	Elsevier
6	62	Schiama G; Schettini E; Santarsiero F; Carlucci D [9]	The Transformative Leadership Compass: Six Competencies for Digital Transformation Entrepreneurship	2022	International Journal of Entrepreneurial Behavior and Research	Emerald
7	58	He Z; Huang H; Choi H; Bilgihan A [10]	Building Organizational Resilience with Digital Transformation	2023	Journal of Service Management	Emerald
8	55	Buluswa R; Pickering M; Mao I [11]	Digital Transformation and Hospitality Management Competencies: Toward an Integrative Framework	2022	International Journal of Hospitality Management	Elsevier
9	52	Weber E; Büttgen M; Bartsch S [12]	How To Take Employees on The Digital Transformation Journey: An Experimental Study on Complementary Leadership Behaviors in Managing Organizational Ch	2022	Journal of Business Research	Elsevier
10	49	Bag S; Sahu Ak; Kilbourn P; Pisa N; Dhamija P; Sahu Ak [13]	Modeling Barriers of Digital Manufacturing in A Circular Economy For Enhancing Sustainability	2022	International Journal of Productivity and Performance Management	Emerald

Source: Data processing results (2024)

Table 2 shows that articles written by Alnuaimi Bk; Kumar Singh S; Ren S; Budhwar P; Vorobyev D is the most suitable keyword. 172 citations are the most citations written by other authors. The article appeared in the Journal of Business Research published by Elsevier. In the article it is concluded that digital transformational leadership and organizational agility positively influence digital transformation, with organizational agility mediating the relationship between digital transformational leadership and digital transformation. The article highlights the importance of transformational leadership capabilities to digitally transform operations to remain relevant and competitive in the Industry 4.0 era. Leaders with these capabilities can significantly influence digital transformation by disrupting traditional processes, structures, and management to

achieve organizational change. Additionally, transformational leadership attributes such as engendering trust, developing teams, self-sacrifice, and leading by example are considered most suitable for organizational change towards digital transformation. These insights are invaluable to human resources and training departments during career planning and recruiting for digital transformation efforts. The role of leadership in the relationship between organizational agility and digital transformation is emphasized, indicating that leadership is a pervasive theme in achieving organizational agility and overcoming digital transformation challenges [4].

The study on "Impact of Digital Leadership Capability on Innovation Performance: The Role of Platform Digitization Capability" was conducted

by Benitez J; Arenas A; Castillo A; Esteves J. This study shows that digital leadership capabilities and platform digitalization capabilities influence innovation performance in European companies by enabling the digitalization of corporate platforms, which in turn improves innovation performance. Digital leadership capabilities are identified as low-level Information Technology capabilities that enable platform digitalization capabilities, high-level IT capabilities. This capability hierarchy shows that digital leadership indirectly influences innovation performance through the mediation of platform digitalization capabilities. Digital platforms provide business simplification and agility, allowing companies to respond quickly to change and develop new products and services [5].

Further research was carried out by Mukhuty S; Upadhyay A; Rothwell H revealed about Strategic Sustainable Development of Industry 4.0 Through The Lens of Social Responsibility: The Role of Human Resource Practices. The articles cover topics such as the adoption of Industry 4.0 technologies, the role of sustainability in driving implementation, the impact of socially responsible HR practices, and the challenges and opportunities presented by the Fourth Industrial Revolution. The articles provide insight into how businesses can navigate these changes and leverage new technologies for success, emphasizing the importance of sustainable and socially responsible practices in the context of Industry 4.0 development [6].

Article written by Borah Ps; Iqbal S; Akhtar S on Linking Social Media Usage and Sme's Sustainable Performance: The Role of Digital Leadership and Innovation Capabilities in 2022 discusses the importance of factors such as environmental

sustainability, digital leadership, use of social media, and innovation capabilities in improving business performance and competitiveness. In addition, the article also explores the relationship between social media use, innovation capability, digital leadership, and sustainable performance in small and medium enterprises (SMEs) in China, highlighting the positive impact of social media use on innovation capability and sustainable performance of SMEs, with digital leadership acting as a moderator [7].

Apart from that, research on digital transformation threatened? A systematic literature review of the factors influencing firms' digital transformation and internationalization written by Feliciano-Cestero Mm; Ameen N; Kotabe M; Paul J; Signoret M pointed out the impact of digital transformation on the internationalization of companies, emphasizing the importance of understanding and utilizing digital technologies for successful cross-border expansion. Key findings include the use of various theories such as transaction cost theory and resource-based theory to study the impact of digital transformation on international business. The research highlights positive impacts such as improved communications and market expansion, as well as challenges such as cybersecurity issues and resource constraints associated with digital transformation [8].

### Topic Visualization Using Vos Viewer

Figure 2 shows the visualization network adapted to the refined keyword "Digital Leadership", while Figure 3 shows the overlay visualization, and Figure 4 shows the density visualization.

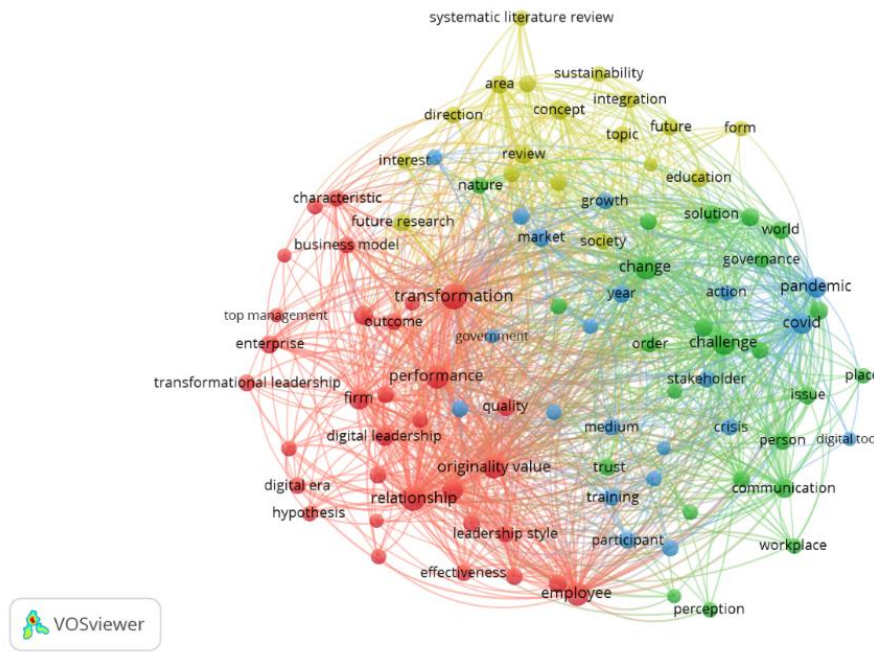


Figure 2. Topic Area Visualization using Network Visualization  
Source: VOSviewer, 2024

Each cluster has a specific color, and several keywords with the same color can be found in each cluster. In general, the relationship between two circles will be stronger the closer they are to each other.

visible items. Each item point has a color that depends on the density of the item at that time. In this image we can interpret the keywords that are most often used in a publication.

Figure 3 shows the density view cluster which is an item or label marked with

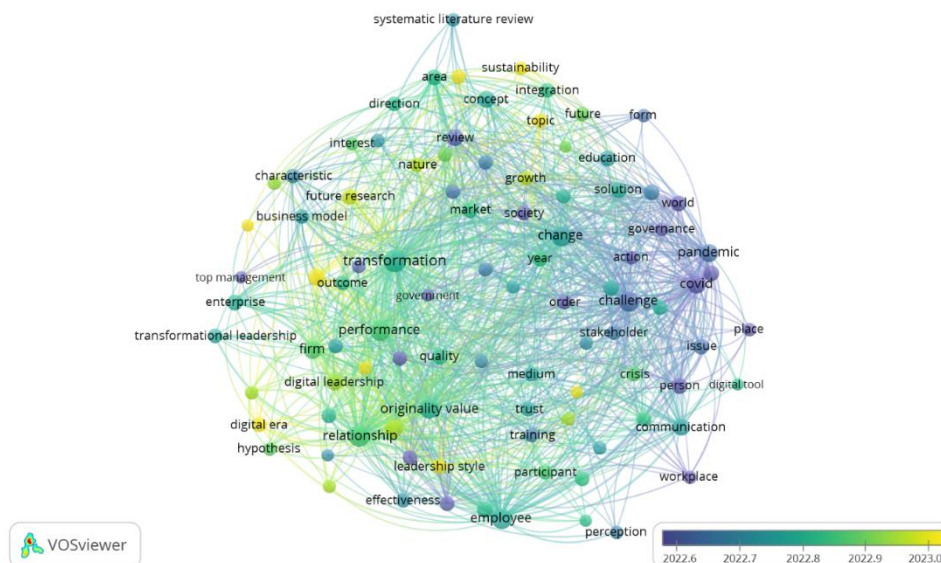


Figure 3. Topic Area Visualization using Overlay Visualization  
Source: VOSviewer, 2024

In addition, as can be seen in Figure 4, the depth of research is indicated by color

variations from blue, green, and yellow. Yellow indicates more keyword-related

research, while blue indicates less keyword-related research.

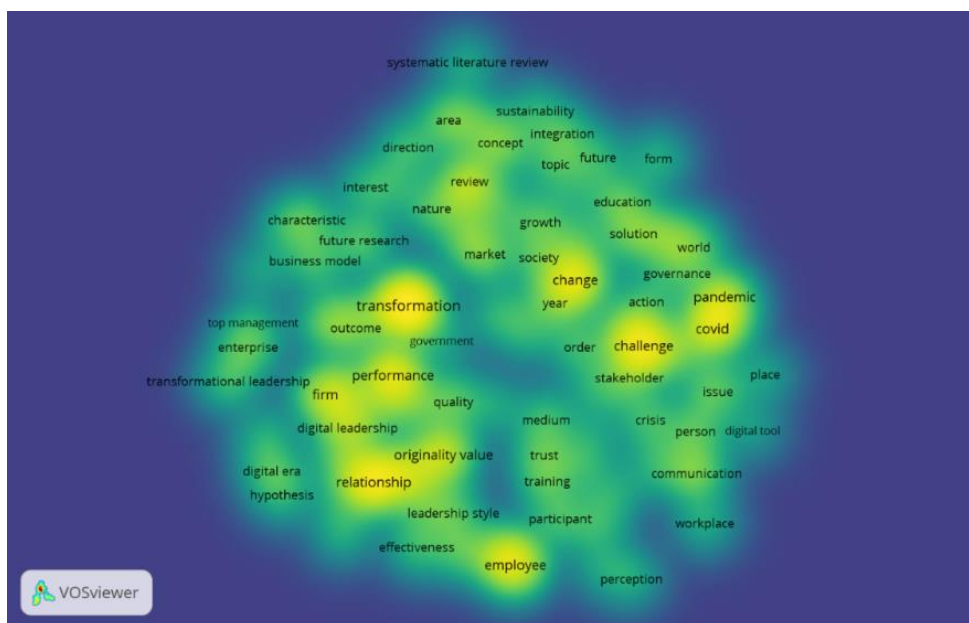


Figure 4. Topic Area Visualization using Density Visualization  
Source: VOSviewer, 2024

#### 4. CONCLUSIONS

This study emphasizes how important digital leadership is for the success of a company, especially in the era of society 5.0. For effective leadership, a leader must be fair, firm, and have the necessary abilities. Although the relationship between leaders and employees is often limited, transformational leaders must digitally transform operations to remain relevant and competitive in the industry 4.0 era. Leaders with these capabilities can significantly influence digital transformation by disrupting traditional processes, structures, and management to achieve organizational change. Digital leadership capabilities and platform digitalization capabilities influence innovation performance in companies enabling the company's platform digitalization, which in turn improves innovation performance. This capability hierarchy shows that digital leadership indirectly influences innovation performance through the mediation of platform digitalization capabilities. Digital platforms provide business simplification and agility, allowing companies to respond quickly to

change and develop new products and services.

This research discusses various aspects of leadership development, such as leader-employee relationships, characteristics of a leader, and how strong the influence of leadership is on team performance and creativity. The research method used is bibliometric analysis which concentrates on the term "leaders who build relationships". The results of the analysis provide an overview of current research trends and the role researchers play in developing digital leadership studies.

The real implication of this research is to see the importance of digital leadership in companies in society 5.0 to achieve business success, especially in facing digitalization challenges. The relationship between social media use, innovation capability, digital leadership, and sustainable performance in small and medium enterprises (SMEs) by highlighting the positive impact of social media use on innovation capabilities and sustainable performance of SMEs, with digital leadership playing a moderating role.

Bibliometric research shows that digital leadership development is critical. To create better leadership development



programs, organizations can use this data. Additionally, the study found that digital leadership research trends can help researchers and organizations to stay relevant and keep up with trends.

So the contribution of the article and related research is to find the highest value cited articles providing an overview of the most significant research on digital

leadership. For practitioners and researchers interested in this topic, it can be an important reference.

Finally, with this research, researchers can take decisions and actions that best suit their situation and objectives. Organizations should consider the results of this bibliometric analysis in relation to their internal context.

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