# Mapping the landscape of Digital Technology and Society: A Systematic Review and Bibliometric Analysis

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**Abstract:** This paper is based on systematic review and bibliometric analysis of Digital Technology and Society. The chief purpose of this review paper is to provide a holistic perspective of publication trend and trajectory in terms of citations and publication metrics. This study analyses the bibliometric data found from Scopus database for the year 2014 to 2023, in order to reveal the most productive countries, authors, and journals in the domain of digital technologies and society. Only journal articles published in English language were considered for this study, total 135 journal articles were used to conduct the analysis. VOSviewer software was used to present the mapping and networks of bibliographic coupling, Co-Citation, and keyword Co-Occurrence analysis. The findings reveal that there is a continuous rise in the number of publications after the year 2016 in the domain of digital technology and society. Russian federation has been the most productive country in terms of number of paper publications. Technology and Society journal has published maximum papers in the domain of digital technology and society. Harvard Business Review and MIT Sloan Management Review were found to have strong Co-Citation Connections. The primary addition of this research is to provide an overview of the research work published so far in the area of Digital Technology and Society that may help scholars to understand the tendencies and future research directions across the world.

*Keywords: Digital Technologies, Society, Bibliometric Analysis, Systematic Literature, Co-Occurrence*

## Introduction

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In recent years, the strong influence of digital technology has changed various aspects of our lives, impacting societies across the world (Castells, 1996; Wellman et al., 2003). The continuous advancements in digital technologies, such as the internet, social media, artificial intelligence, and mobile devices, have brought about manifold changes in how we communicate, work, access information, and interact with each other (Kaplan & Haenlein, 2010; Brynjolfsson & McAfee, 2014). This integration of digital technology into society has given rise to considerable interest among research scholars, practitioners ,policymakers, and the general public, demanding detailed study into its impacts and implications (Van Dijk, 2012; Kitchin, 2014).

The knowledge of multifaceted relationship between digital technology and society has become important due to its potential to revolutionize various sectors, including education, healthcare, business, and governance (Weller, 2011; World Economic Forum, 2018). The growing adoption of digital technology has not only facilitated greater connectivity and information sharing but has also put forth new challenges and raised important questions about privacy, cyber security, digital literacy, and social inequality (Boyd, 2014; Hargittai, 2018). As a result, a comprehensive examination of the existing research in this domain is essential to comprehend the current landscape, identify knowledge gaps, and provide valuable insights for future research, policymaking, and societal development (Li, X., Shi, Y., Liu, Z., Wang, M., Chen, T., & Zhang, H.2021).

This systematic review aims to critically analyse the existing literature on digital technology and society, with a particular focus on its impact on various aspects of human life. By employing a bibliometric analysis approach, this study seeks to explore the quantitative patterns and trends within the literature, identify key research themes and methodologies, and examine the scholarly output and collaboration networks of researchers in this field (Rafols et al., 2012; Zhang et al., 2018). Through this comprehensive analysis, we aim to contribute to the existing body of knowledge by synthesizing and summarizing the key findings and identifying research priorities in the domain of digital technology and society.

By undertaking this systematic review and bibliometric analysis in the domain of digital technology and society, we aim to shed light on the dynamic relationship between digital technology and society, identify emerging trends, and provide a valuable resource for researchers, policymakers, and practitioners seeking to navigate the complex terrain of the digital era. Further in this paper we have covered Methodology, Results and Discussions in which we have presented our analysis of publication trends, most productive authors, leading Countries, bibliographic coupling of countries, co-authorship among countries, leading journals, co-citation of top journals and keyword co-

occurrence analysis. At last we provided conclusion and future research direction in the domain of Digital technology & society. Ultimately, we hope that this study will contribute to the advancement of knowledge and foster evidence-based decision-making to harness the transformative potential of digital technology while addressing the challenges and concerns it poses to society.

The structure of this paper is as follows: Section 1 Gives an Introduction of the topic along with the brief understanding of Systematic Review and Bibliometric Analysis, Section 2 provides an overview of the methodology employed, including the search strategy, inclusion criteria, and data analysis techniques. Section 3 presents the results of the bibliometric analysis, including publication trends, authorship patterns, and collaboration networks. In Section 4 we offer a discussion of the implications of the findings, highlight the limitations of this study. Finally, Section 5 suggests avenues for future research and Section 6 presents Conclusion.

## Methodology

Publications related to Digital Technology and Society were found using Scopus database, Scopus is considered as a comprehensive repository of peer reviewed research in social science. We used the following search query: TITLE-ABS-KEY ( "Digital

Technology" AND "Society" ) AND ( LIMIT-
TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-
TO ( PUBYEAR , 2023 ) OR LIMIT-
TO ( PUBYEAR , 2022 ) OR LIMIT-
TO ( PUBYEAR , 2021 ) OR LIMIT-
TO ( PUBYEAR , 2020 ) OR LIMIT-
TO ( PUBYEAR , 2019 ) OR LIMIT-
TO ( PUBYEAR , 2018 ) OR LIMIT-
TO ( PUBYEAR , 2017 ) OR LIMIT-
TO ( PUBYEAR , 2016 ) OR LIMIT-
TO ( PUBYEAR , 2015 ) OR LIMIT-
TO ( PUBYEAR , 2014 ) ) AND ( LIMIT-
TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-
TO ( SUBJAREA , "BUSI" ) ) AND ( LIMIT-
TO ( EXACTKEYWORD , "Digital        Technologies" ) OR LIMIT-
TO ( EXACTKEYWORD , "Digital        Technology" ) OR LIMIT-
TO ( EXACTKEYWORD , "Human" ) OR LIMIT-
TO ( EXACTKEYWORD , "Digitalization" ) OR LIMIT-
TO ( EXACTKEYWORD , "Humans" ) OR LIMIT-
TO ( EXACTKEYWORD , "Digital        Transformation" ) OR LIMIT-
TO ( EXACTKEYWORD , "Artificial        Intelligence" ) OR LIMIT-

TO ( EXACTKEYWORD , "Digital            Economy" ) OR LIMIT-
TO ( EXACTKEYWORD , "Education" )  OR  LIMIT-
TO ( EXACTKEYWORD , "Society" ) )  AND  ( LIMIT-
TO ( SRCTYPE , "j" ) )

Only journal articles published in English language during the years 2014 to 2023 were chosen for this study, it is pertinent to mention that the documents were limited to the fields of Business, Management and Accounting. After filtration total 135 Journal articles were considered to conduct the analysis.

The collected data was analysed using bibliometric techniques, Bibliometric analysis is a quantitative research method used to evaluate and analyse scientific literature within a specific field. It involves examining various bibliographic characteristics, such as publication patterns, citation counts, author collaborations, and journal impact factors. This approach provides insights into the growth and impact of research, identifies influential authors and institutions, and highlights emerging trends (Perianes-Rodriguez et al., 2016). It is widely used to assess the productivity and impact of researchers, identify research gaps, and inform policy decisions (Li et al., 2021). By utilizing bibliometric analysis, researchers can gain a comprehensive understanding of the knowledge landscape, collaboration networks, and research trends within a specific field, thus facilitating evidence-based decision-making and strategic planning (Glänzel et al., 2020; Abrizah et al., 2020).

In order to create the visual representation of bibliographic content VOSviewer program was used, VOSviewer takes bibliographic data as input and provides network graphs as output. The following analysis were done using VOSviewer: (i) Bibliographic Coupling of Countries, (ii) Co-Authorship among Countries, (iii) Co-Citation of top journals, (iv)Keyword Co-Occurrence Analysis.

## Results

### *Publication Trends*

Figure 1 offers the outcome of the publication tendencies in the domain of Digital Technology and Society. The exploration statistics show a total of 135 papers with 2941 citations received. Table 1 supplements the outcome of
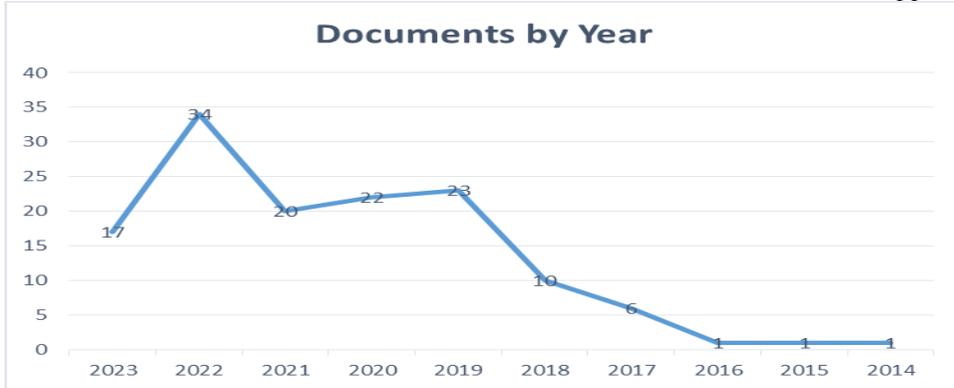
*Figure 1 – Trends of Publications (Source: Prepared by Authors)*

*Table 1 – Trends of Publications (Source: Prepared by Authors)*

| Year | Documents by Year | Citations |
|---|---|---|
| **2023** | 17 | 107 |
| **2022** | 34 | 4 |
| **2021** | 20 | 66 |
| **2020** | 22 | 468 |
| **2019** | 23 | 202 |
| **2018** | 10 | 407 |
| **2017** | 6 | 818 |
| **2016** | 1 | 576 |
| **2015** | 1 | 271 |
| **2014** | 1 | 22 |

The outcome of Table 1 display that in the year 2022 highest number of papers in the domain of Digital Technology and society were published but the citations are only 4. In the year 2017 though there were only 6 papers got published but the citations were maximum 818, this year can also be considered as the take-off year of publications in the domain. After 2017 there is continuous rise in the number of papers published till 2022.

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*Leading Countries in Digital Technology and Society Research*

Several countries are publishing significant studies on Digital technologies. In this section we look into the output and effect of the most prominent countries between 2014 and 2023. Figure 2 offers the outcomes of the top 10 nations' publications in the domain of digital technologies and society. The position was based on the number of papers. In case of a tie the country with more citations had been ranked higher.
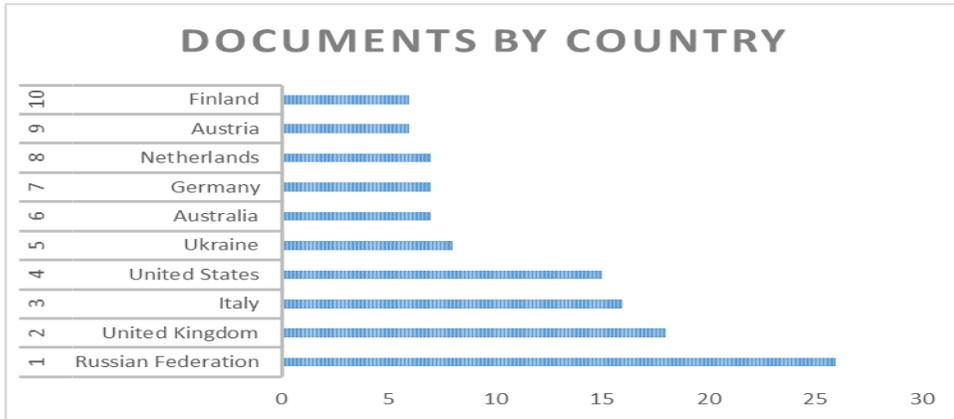


*Figure 2 – The most productive countries (Source: Prepared by Authors)*

Table 2 displays that the Russian federation was the most productive nation in terms of number of paper publication, the papers published by scholars of Russian federation were 26. Papers from Finland had received the maximum number of citations i.e. 893. This shows that the academicians of Russian federation are paying more attention to the domain of Digital Technology and society. United Kingdom and Italy were at the position of 2nd and 3rd respectively in number of paper publication. UK and USA stood on position 2nd and 3rd in terms of citations, Italy stood at 4th rank in citations. There was a tie among Canada, Denmark and France in number of papers produced, each of them had produced 5 papers but Canada received highest citations among them i.e. 257. India has produced 6 papers

*Table 2 – The Most productive countries and Citations (Source: Prepared by Authors)*

| Sr No | Country | Publications | Citations |
|---|---|---|---|
| 1 | Australia | 7 | 287 |
| 2 | Austria | 6 | 54 |
| 3 | Canada | 5 | 257 |
| 4 | Denmark | 5 | 111 |
| 5 | Finland | 6 | 893 |
| 6 | France | 5 | 102 |
| 7 | Germany | 7 | 141 |
| 8 | India | 6 | 202 |
| 9 | Italy | 16 | 494 |
| 10 | Netherlands | 7 | 74 |
| 11 | Russian federation | 26 | 269 |
| 12 | Spain | 6 | 35 |
| 13 | Ukraine | 8 | 13 |
| 14 | United kingdom | 18 | 717 |
| 15 | United States | 15 | 562 |

in the domain of Digital Technology and had received 202 citations.

Figure 3 signifies the outcome of the bibliometric connection. Each ring indicates a nation and the size of the ring signifies the productivity, the greater the size the more productive they were. The Russian federation was the most prolific nation in terms of number of papers produced but UK had the most noteworthy bibliometric connections with additional nations.

Figure 4 shows the Co-authorship associations, with the Co – author association we could understand the scale of a country's publications and its key partnership with other countries. The figure reflects a separate colour to show the networking and the co-authorship. The USA had close cooperation

with France, Denmark, Finland and Italy while UK had close cooperation with India, Canada, Australia and Germany.

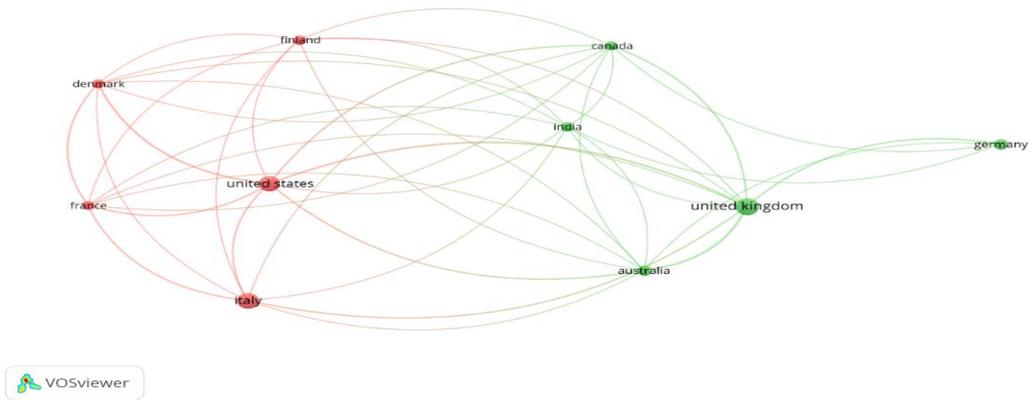*Figure 3 – Bibliographic Coupling of Countries (Source: Prepared by Authors)*
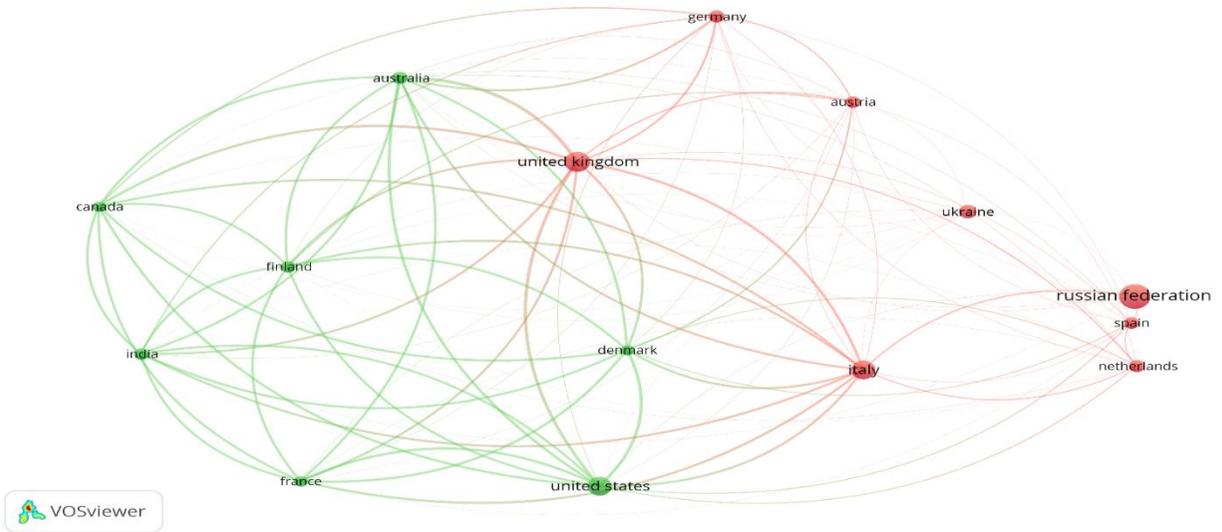




*Figure 4 – Co – Authorship among Countries (Source: Prepared by Authors)*

### *Leading Journals*

Another essential element of the bibliometric review was to look at the most active sources (i.e. Sources that conducted more Digital Technology and Society research than others). The top sources are listed in Table 3. Technology in Society was the top journal in terms of publications in the domain of digital technology and society, this journal had published total 11

papers during 2014 to 2023, followed by Economy of regions journal with 7 publications. Technological forecasting and social change stood at 3rd rank with 5 publications and Digital Policy, Regulation and Governance stood at 4th rank with 4 publications. Wherever there was a tie the higher rank was given to the journal with more citations. International journal of recent technology and engineering was the least productive source on the list.

An interesting aspect of the bibliometric analysis was the co citation analysis of the top journals, co citation happens when two papers from two dissimilar journals are cited together by a third document. The papers published in the sources mentioned in Table 3 possessed heavy co-citation connection with each other. Table 4 endorses the results presented in Figure 5. The results predict that an article published in top journals would be cited within the articles published in the journals mentioned in Table 4. Harvard Business review had 103 citations, MIT Sloan management review had 124 citations, and MIS Quarterly Executive had 100 citations followed by others. It is pertinent to mention that the journals sharing the same colours (in Figure 5) had the strongest co citation links. For example the journals presented in the red colour cluster are strongly co cited. Similarly the journals presented in the green colour cluster are strongly co cited.

*Table 3 – Top Sources that Published Digital Technology Research (Source: Prepared by*

*Authors)*

| Rank | Source | Publication |
|:---:|:---:|:---:|
| 1 | Technology in Society | 11 |
| 2 | Economy of regions | 7 |
| 3 | Technological forecasting and social change | 5 |
| 4 | Digital policy, regulation and governance | 4 |
| 5 | International journal of information management | 3 |
| 6 | Polish journal of management studies | 3 |
| 7 | Journal of cleaner production | 3 |
| 8 | Quality - access to success | 3 |
| 9 | International journal of recent technology and engineering | 3 |

*Table 4 – Co Citation of Top Journals (Source: Prepared by Authors)*

| Sr No | Source | citations | total link strength |
|---|---|---|---|
| 1 | California management review | 30 | 4430 |
| 2 | European journal of information systems | 24 | 510 |
| 3 | Harvard business review | 103 | 13329 |
| 4 | Human relations | 45 | 110 |
| 5 | Industrial marketing management | 23 | 289 |
| 6 | Information systems research | 23 | 437 |
| 7 | International journal of information management | 57 | 1181 |
| 8 | Journal of business research | 67 | 1080 |
| 9 | Journal of cleaner production | 42 | 470 |
| 10 | Journal of international business studies | 29 | 337 |
| 11 | Long range planning | 23 | 300 |
| 12 | Mis quarterly | 71 | 1378 |
| 13 | Mis quarterly executive | 100 | 15014 |
| 14 | Mit Sloan management review | 124 | 16819 |
| 15 | Nature | 26 | 419 |
| 16 | Organization | 21 | 229 |
| 17 | Organization science | 23 | 473 |
| 18 | Organization studies | 37 | 322 |
| 19 | Research policy | 31 | 750 |
| 20 | Strategic management journal | 22 | 423 |
| 21 | Sustainability | 58 | 366 |
| 22 | Technol. soc. | 25 | 12 |
| 23 | Technological forecasting and social change | 56 | 848 |
| 24 | Technovation | 22 | 248 |
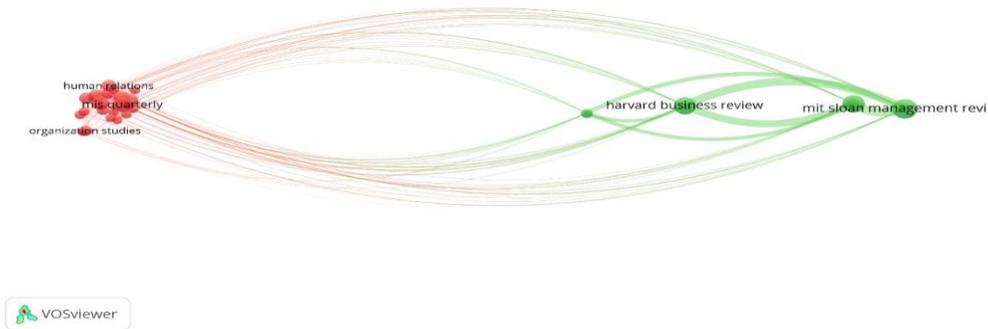
*Figure 5 – Co Citation of top Journals (Source: Prepared by Authors)*

### *The most productive Authors in Digital Technology and Society Research*

In order to see who published their work on Digital Technology and Society most frequently, we present the result in Table 5. Yoo y tops the list with 3 paper publications and 179 citation. Dudin stood at 2nd rank with 3 publications and 14 citation. Schneider was at 3rd rank with 2 publications and 42 citation. Tsvetkov and Garnov were at 4th and 5th rank respectively with 2 publications and 8 and 7 citation each. Wherever there was a tie in number of papers the author with more citations had been given with a higher rank.

*Table 5 – The most productive Authors in Digital Technology and Society (Source: Prepared by Authors)*

| Rank | Author | Affiliation | No of Papers | Citation |
|---|---|---|---|---|
| 1 | Yoo y. | Information Systems Department, IESE Business School, Barcelona | 3 | 179 |
| 2 | Dudin m.n. | Market Economy Institute, Russian Federation | 3 | 14 |
| 3 | Schneider s. | Department of Business and Economics, Italy | 2 | 42 |
| 4 | Tsvetkov v.a. | Market Economy Institute, Russian Federation | 2 | 8 |

| 5 | Garnov a.p. | Institute of Socio-Economic Studies of Population, Russian Federation | 2 | 7 |

### Keyword Co-occurrence Analysis

We have created a Keyword Co-Occurrence map which is presented in Figure 6. For its development we had restricted the minimum number of keyword occurrences to 5. VOSviewer had identified 21 keywords that meet the Threshold. The 5 most occurring keywords from Table 6 were Digital Technologies (70), Digitalization (31), Digital Transformation (26), Digital Economy (24), and Innovation (10).

As can be observed from Figure 6 that keywords were divided into 3 major clusters each cluster indicating a different colour. The keywords in blue colour cluster were (i) Digital Transformation, digitalization, Human and Digital Technology (ii) The keywords in red colour cluster were Innovation, Big data, Artificial Intelligence, Block Chain, and Technology Development (iii) The keywords in green colour cluster were Digital technology, Society, and Digital Economy.

*Table 6 – Keyword Co-Occurrence (Source: Prepared by Authors)*

| Sr | Keyword | occurrences | total link strength |
|----|---------|-------------|---------------------|
| 1 | Artificial intelligence | 7 | 11 |
| 2 | Big data | 7 | 12 |
| 3 | Block chain | 5 | 9 |
| 4 | Covid-19 | 5 | 17 |
| 5 | Digital economy | 24 | 20 |
| 6 | Digital technologies | 70 | 94 |
| 7 | Digital technology | 8 | 3 |
| 8 | Digital transformation | 26 | 42 |
| 9 | Digitalization | 31 | 41 |
| 10 | Digitization | 7 | 21 |
| 11 | Economic and social effects | 5 | 14 |

| 12 | Human | 5 | 4 |
|----|-------|---|---|
| 13 | Industry 4.0 | 5 | 8 |
| 14 | Innovation | 10 | 29 |
| 15 | Literature review | 5 | 14 |
| 16 | Society | 7 | 9 |
| 17 | Sustainability | 6 | 14 |
| 18 | Sustainable development | 8 | 20 |
| 19 | Technological development | 7 | 21 |
| 20 | Technology | 10 | 24 |
| 21 | Technology adoption | 7 | 19 |



*Figure 6 – Keyword Co Occurrence Network (Source: Prepared by Authors)*

## Future Direction

In the area of Digital Technology and Society, several research avenues are emerging and likely to be explored in the near future. With the increasing use of digital technologies, issues surrounding privacy and data protection are becoming more complex. Research can focus on understanding

the implications of data collection, storage, and usage on individuals and society. This includes exploring the impact of emerging technologies like artificial intelligence (AI), Internet of Things (IoT), and biometrics on privacy. Algorithmic decision-making systems are embedded in various aspects of our lives, ranging from social media algorithms to hiring processes. Research can delve into the ethical considerations of these algorithms, including biases, fairness, transparency, and accountability. Understanding the societal consequences of biased algorithms and proposing solutions will be essential.

As digital technologies become pervasive, addressing the digital divide and ensuring equal access and opportunities for all individuals becomes crucial. Research can focus on strategies to bridge the digital divide, promote digital literacy, and create accessible technologies for people with disabilities. Social media platforms continue to shape public discourse, political participation, and social interactions. Research can investigate the effects of social media on mental health, political polarization, disinformation, and privacy concerns. Understanding how these platforms impact society and developing guidelines for responsible use is an ongoing area of interest. The rise of online communities and virtual identities presents opportunities and challenges. Research can explore the dynamics of online communities, their impact on offline relationships, and the formation of virtual identities. Additionally, examining the implications of emerging trends like virtual reality (VR) and augmented reality (AR) on social interactions is another potential area.

## Theoretical Implications

As digital technologies advance, the need for effective governance and regulation becomes crucial. Research can focus on understanding the regulatory challenges and opportunities posed by emerging technologies, such as AI, block chain, and autonomous systems. Exploring frameworks for data governance, cyber security, and intellectual property rights in the digital age are important considerations. With the increasing integration of technology into our lives, studying the impact of digital technologies on well-being is essential. Research can examine the relationship between technology use and mental health, explore design principles for promoting positive user experiences, and investigate the effects of technology addiction.

## Conclusion

Bibliometric analysis is useful to identify and classify scientific activity in particular field of study. It is a tool to get an idea regarding key themes and trends in a journal or in a particular field of study. Bibliometric analysis of a sole publication like journal or any field of study offers the systematic creation and evolution of that journal or field of study. Based on the Scopus results this paper offers a bibliometric overview of Digital Technology and Society.

The objective of this review was to identify the number of articles and the degree of impact they have created through their scientific performance. According to the findings, there was a steady rise in number of publications after the year 2017, as the number of publication has increased therefore there is a simultaneous rise in the citations earned by these publications, it indicates the growing interest of scholars in the field of Digital technology and Society, The 135 papers published and indexed in Scopus had 2941 citations. This article like every other research work has few drawbacks that need to be considered. One of the drawbacks is Author Affiliation, which can change overtime, so it may happen that the same author publishing papers having different affiliations. The findings of this research will only give the picture of the current characteristics of digital technologies and society, which are expected to change or evolve over time. As a result it will be a good idea to stay up to date on emerging trends in the field. Despite these drawbacks, this bibliometric analysis focused on the key developments in the domain of Digital technology and society, which could be beneficial for scholars and practitioners of digital technologies.

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