

Development and Trend of User Data Privacy Awareness in the Use of Social Media in the Digital Era Using Bibliometrix Analysis

Syaifullah¹, Sophia Anjani², Nadirah³, Elsy Avivi⁴, Rena Resdarima⁵

^{1, 2, 3, 4, 5}Department of Information Systems, Faculty of Science and Technology,
Sultan Syarif Kasim State Islamic University of Riau, Indonesia

ABSTRACT: Understanding privacy awareness in the use of social media is very important in the current digital era, the use of social media and the exchange of user data has increased significantly. The problem of misuse of data, privacy violations, and low public understanding of privacy awareness raise concerns about the security of personal information. Therefore, this research aims to analyze the development and trends of user data privacy awareness in the use of social media from 2014 to 2024 using Bibliometric analysis from R studio software. The data obtained in this research was 671. The research methodology included planning, keyword identification, Scopus data search, bibliometrics, and biblioshiny, trends related to privacy awareness, user data, social media, digital era, and finally a thematic map. The results of this research provide a picture regarding the development of the number of publications which will continue to increase in 2024 with as 174 articles, Computers In Human Behavior and Information System Research are the most relevant journals, Chatterjee.S. and Chaudhuri.R. are the top authors. Apart from that, it also provides an overview of trends in user data privacy awareness in the use of social media through thematic maps with data privacy, privacy concerns, social networks (online) being trending topics for further research.

KEYWORDS: Privacy Awareness, User Data, Social Media, Digital Era, Bibliometric Analysis

I. INTRODUCTION

Social media has become the primary means for individuals to interact, express themselves, and build social networks online. However, this massive use has also triggered concerns over the protection of users' personal data due to the high intensity sharing information on these platforms [1]. Privacy awareness plays an important role in determining the extent to which individuals are willing to provide their personal information on digital platforms. Although users are aware of the risks of personal information leakage, they often still share sensitive data such as location, private photos, or personal preferences, indicating a gap between awareness and actual behavior. known as phenomenon privacy paradox [2]. Research by Lee and Attablayo (2023) revealed that a high level of privacy awareness can reduce the tendency of users to over-disclose personal information [3]. Factors such as age, education, and digital experience also affect the level of privacy awareness. Rughinis et al. (2021) found variations in privacy awareness among social media users across 28 European countries, with a higher level of awareness among individuals with experience digital experience that are more [4]. Nyoni and Velepini (2018) also revealed that users routinely upload sensitive data without realizing that the information can be publicly accessed and used for personal activity tracking [5].

Furthermore, a meta-analysis conducted by Baruh, Secinti, and Cemalcilar (2017) showed that while online privacy

concerns are high, the relationship between these concerns and actual privacy management behaviors is weak. They also highlighted the moderating influence of cultural context, age, and trust in the platform, which reinforces the importance of further exploration of the factors shaping privacy awareness in the digital space [6].

Although several previous reports have been conducted to demonstrate an understanding of the category of user data privacy awareness, there is still a lack of literature regarding data privacy awareness in the digital era. From this context, knowledge of thematic developments and patterns of expanding trends in user data privacy awareness, on social media in the digital era is lacking. Therefore, this study aims to analyze the development and trends of user data privacy awareness in social media in the digital era from 2014 to 2024 by using bibliometric analysis of the R Package in RStudio. Including Biblioshiny which is a Shiny application that provides a web interface for bibliometrics. From this context, the application of bibliometric analysis methods can summarize data, namely in the form of publication units [7]. Bibliometric analysis is also used to determine the development of global research, analyze distribution maps, and interpret awareness of user data privacy in social media in the digital era.

This research uses the following questions:

RQ1: How does awareness of user data privacy on social media in the digital era develop from 2014 to 2024?

“Development and Trend of User Data Privacy Awareness in the Use of Social Media in the Digital Era Using Bibliometrix Analysis”

RQ2: What are the trends regarding user data privacy awareness on social media in the digital age in the future world?

II. METHODS

A. PLANNING

The planning stage begins with determining the theme, where the theme in this research is related to Privacy Awareness. This research uses data from 2014-2024. This data is obtained from the SCOPUS database which contains various citations regarding keyword searches used for bibliometrix analysis. This database is often used to retrieve data in systematic reviews [8] and bibliometrix analysis [9] as it contains the highest quality scientific publications. In this case, the procedure resulted in a data document containing 671 articles. The metadata was then extracted in bib style format.

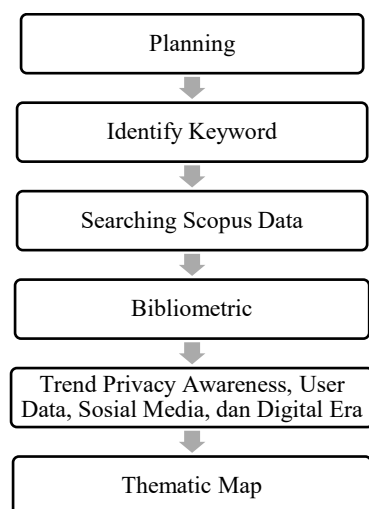


Figure 1. Methodology

B. Keyword Identification

Keyword identification is a step taken by researchers to find keywords used by collecting various journals and articles related to Privacy Awareness, User Data, Social Media, and Digital Era. In bibliometrix analysis, the use of keywords allows researchers to better measure the trend, quantity and impact of research related to the topic. In addition, keywords are also used to facilitate the search and understanding of relevant scientific literature in a knowledge domain. In this study, researchers used Boolean logic operators such as AND/OR in determining word [10]. This research uses the search keywords "User Data" OR "Data Privacy" OR "Personal Data" AND "Privacy Awareness" OR "Security and Privacy Concerns (spc)" OR "Privacy Concern" OR "Privacy Knowledge" AND "Social Media" OR "Social Network Sites" OR "Social Media Network" OR "Online Social Network" OR "Social Network" AND "Digital Era" OR "Digital Transformation" OR "Digitalization" OR "Information Age" OR "Age of Information" OR "Digital Transition". These keywords will be used by researchers in searching for data in the SCOPUS

database on this topic. The keyword search in the SCOPUS database can be seen in Figure 2.

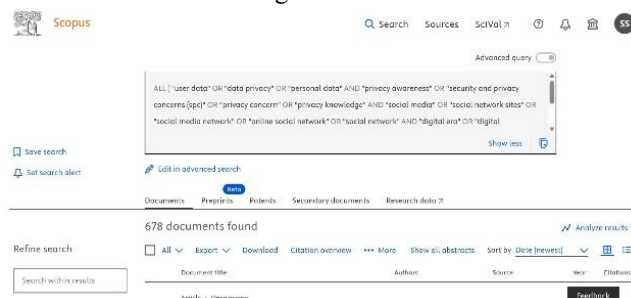


Figure 2 Keyword search in the Scopus database

C. Scopus Data Search

Research on Privacy Awareness can be found in various scientific publication media, books, journals, or conference proceedings. These media have different qualities. Therefore, the research chose Scopus and Web of Science as data sources because scientific articles indexed by Scopus go through a peer review process [3]. Scopus is a database of citations and abstracts that are supervised by experts in their fields [11]. Based on information from the Scopus website (<https://www.scopus.com/>) accessed on May 28, 2025, data was generated as many as 678 articles in accordance with the research theme. Scopus is one of the largest curated abstract and citation databases, with extensive global and regional coverage of scientific journals, conference proceedings, and books [12]. Scopus helps researchers to search for, and visualize research effectively. A total of 678 articles were filtered to prevent duplication of keywords and filters, such as (1) search in "all fields" (2) selected criteria of 10 years (2014-2024), (3) filter by document type, (4) publication stage, (5) source type, and (6) language. In this case, the procedure results in the retrieval of various information, including citations, bibliographies, abstracts & keywords. This can be seen in figure 2.

D. Bibliometrics

Professor Massimo Aria launched Bibliometrix in 2017. Bibliometrix is a package used in R software. In R, there is also biblioshiny, an application that provides a web interface for bibliometrics [13]. To make it easier to use for researchers who are not familiar with programming, biblioshiny was developed, a visual web- based interface of bibliometrix. Biblioshiny allows users to perform bibliometric analysis through an interactive interface without the need to write R scripts directly [14]. To use bibliometric techniques and biblioshiny, you can install R from RStudio. After installing, run the `install.packages("bibliometrix")` command, which is used to install the bibliometrix package. Once done, run `library(bibliometrix)`, this command is used to load the bibliometrix package. The last step is to enter the `biblioshiny()` command, this command will open the interface [15].

“Development and Trend of User Data Privacy Awareness in the Use of Social Media in the Digital Era Using Bibliometrix Analysis”

Metadata is extracted in the form of bib files (Bib TeX), and the data will be imported and converted into frame datasets. The biblioshiny interface will display the analysis and visualization results in four different levels of metrics, including: source, author, document, and clustering based on coupling. Furthermore, three knowledge structures are analyzed: conceptual structure, intellectual structure, and social structure. Of the 7 analysis menus available, each has submenus that support academics in using the main features of bibliometrix easily. The biblioshiny interface can be seen in Figure 3.

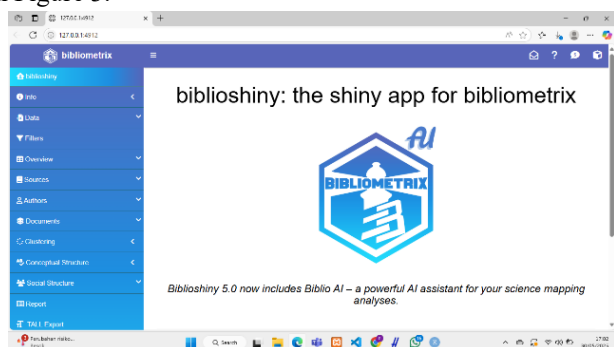


Figure 3 biblioshiny interface

E. Trends in Privacy Awareness, User Data, Social Media, and Digital Era

Along with the development of digital technology adoption and the use of social media, trends in privacy awareness, user data, and the digital era continue to experience significant developments. Trend analysis can be done after importing data from Scopus into bibliometrics [16]. Bibliometric trends regarding privacy awareness, user data, social media, and the digital era can be seen on thematic maps that are grouped into several clusters. This thematic map will later become a reference for future researchers to examine themes related to privacy awareness, user data, social media, and the digital era [17].

a. Thematic Map

The analysis of thematic maps on privacy issues is associated with two dimensions, namely density and centrality. Furthermore, the themes on the thematic map were grouped based on 4 different categories, namely motor themes, niche themes, emerging of declining themes, and basic themes [18]. Motor Themes are located in the first quadrant, top right with a cluster network that has high centrality and density, indicating that these themes are well developed and important for structuring research subjects [19]. Niche Themes or specialized themes are located in the second quadrant, top left with themes that have high density and low centrality indicating that their relevance is limited [20]. Emerging of declining themes are located in the third quadrant, bottom left with themes of low centrality and low density and indicate that the themes are either minimally advanced or marginal [21]. Finally, the Basic Theme is located in the fourth quadrant, bottom right with high centrality and low density,

these themes are very important for transdisciplinary research issues [22]. In the visual representation, identifying the trajectory is shown by dividing time into segments, in other words, movement towards the upper right over time shows an increasing trend while trajectory towards the lower left shows a decreasing trend.

III. RESULTS AND DISCUSSION

A. Development of user data privacy awareness in social media in the digital era.

The data used in this study amounted to 671 articles from the Scopus database taken from 2014-2024 which were identified based on document type, journal source type, research year, search in "all fields" and research trends. Furthermore, the data is processed using a bibliometrix approach using R Studio software based on 671 existing article data. The results of the processed data display statistical data graphs based on the data in the article.

a. Research on user data privacy awareness in social media in the digital era based on average publications

Based on the publication results, it is described that the total number of publications and article citations so that the volume of article publications can be measured. Figures 4 and 5 show the development of Privacy Awareness of user data on social media in the digital era from 2014-2024.

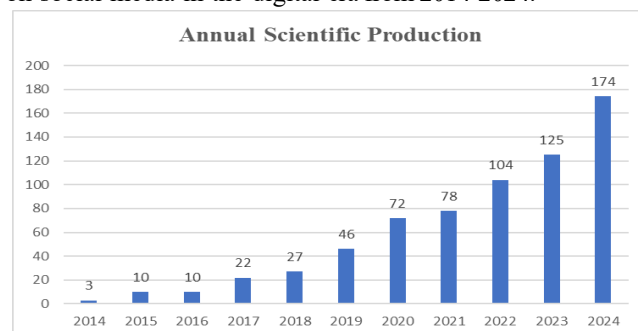


Figure 4 Research developments based on publications

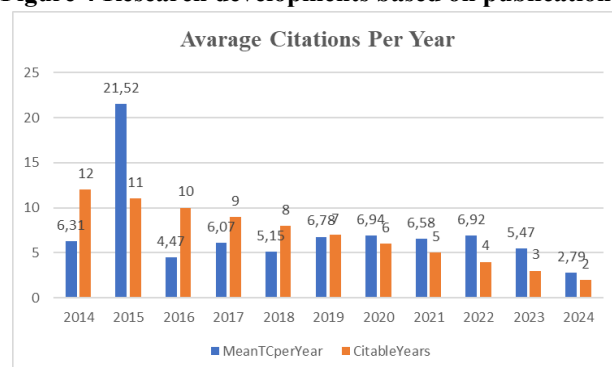


Figure 5 Research development based on average annual citations

Figure 4 presents the development of the publication of User Data Privacy Awareness in Social Media in the Digital Era based on the number of publications from 2014 to 2024. During this period, 671 of the most relevant scientific publications were presented. In 2014 to 2016, the number of

“Development and Trend of User Data Privacy Awareness in the Use of Social Media in the Digital Era Using Bibliometrix Analysis”

publications was still at a low to moderate level, namely 3, 10, and 10 articles, respectively. Furthermore, in 2017 and 2018 there was an increase in publications to 22 and 27 articles. Starting from 2019, there was a significant spike in the number of publications with a total of 46 articles, and this increasing trend continues consistently. In 2020, 72 articles were recorded, followed by 78 articles in 2021, 104 articles in 2022, 125 articles in 2023, and reached its peak in 2024 with 174 articles. This surge reflects the increasing attention and research interest in this topic in recent years.

Based on Figure 5, it depicts the average number of article citations per year. since the emergence of research on User Data Privacy Awareness in Social Media in the Digital Era in 2014, the average number of citations has increased.

Digital Era in 2014, the average annual number of citations has gone through several different phases. In the first phase, 2014 recorded an average citation value of 6.31, which then jumped significantly in 2015 reaching 21.52 to become the year with the highest average citations during that period. However, in 2016 there was a drastic decline to 4.47. For the second phase, Awareness of User Data Privacy on Social Media in the Digital Age increased gradually, from 6.07 in 2017, 5.15 in 2018, to 6.78 in 2019. In 2020, the citations increased slightly again to 6.94, then stabilized in the following years with 6.58 in 2021 and 6.92 in 2022. This was accompanied by a third phase where the average value decreased to 5.47 and 2.79 in 2023 and 2024, despite the highest number of publications in those years. This suggests that despite the increase in productivity, newer articles take longer to gain a significant number of citations.

b. Research on User Data Privacy Awareness on Social Media in the Digital Age based on the most relevant journals

Table 1 Research developments based on the most relevant journals

Sources	Articles
Computers In Human Behavior	14
Journal Of Business Research	12
Sustainability (Switzerland)	11
IEEE Access	10
Journal Of Interactive Marketing	9
Technological Forecasting and Social Change	9
Telematics and Informatics	8
Electronic Markets	7
Information and Management	7
Information System Research	7

Based on table 1, there are 10 top journals published with the highest number of publications. Computers In Human Behavior and Journal Of Business Research are ranked first and second with 14 and 12 articles respectively. Sustainability (Switzerland) is ranked third with a total of 11 articles. IEEE Access ranked fourth with a total of 10 articles. Journal Of Interactive Marketing and Technological Forecasting and Social Change ranked fifth with 9 articles each. Telematics and Informatics is ranked seventh with a total of 8 articles. Then the next publications Electronic Markets, Information and Management, and Information System Research are ranked last with a total of 7 articles.

c. Research on User Data Privacy Awareness in Social Media in the Digital Age based on the most relevant keywords

Word occurrence networks are used to map and combine terms taken from keywords, titles, or abstracts in bibliographies to analyze words and determine the conceptual structure of a framework. Define terms from textual fields such as abstracts, titles, keywords, and authors and remove words and apply porter's stemming algorithm. Stemming is the reduction of inflected words (or sometimes their derivatives) to their base form in a written format that emphasizes the words that appear most in the reader's text or collection.

The analysis of User Data Privacy Awareness on Social Media in the Digital Age as well as the identification of important topics, concepts, and themes are also facilitated by analyzing the most frequently used words. The frequency of the author's keywords in the publication User Data Privacy Awareness on Social Media in the Digital Age can be seen in Figure 6. Data Privacy is ranked first out of 2377 frequently occurring keywords with 136 occurrences, privacy, human, privacy concerns, article, social networking (online), personal information, social media, female, and decision making with 95, 54, 52, 44, 44, 33, 32, 30, and 29 words respectively.

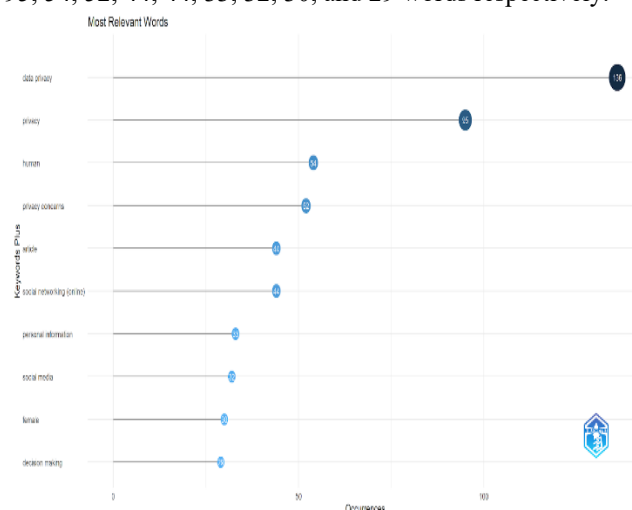


Figure 6 Research developments based on the most relevant keywords



Figure 7 WorldCloud

The Word Cloud can be seen in Figure 7, where the Word Cloud describes the author's keywords with a font size that indicates the level of frequency. Although Figure 6 and Figure 7 have different shapes, the content remains the same with different presentation concepts.

d. Research on User Data Privacy Awareness in Social Media in the Digital Age Based on Country Collaboration

International cooperation between countries can be seen in Figure 8 with a red line indicating the relationship when cooperation is found between two countries or regions. Circles are used to show the frequency of appearance of a particular topic trend with horizontal lines indicating the range between quartiles, indicating the period during which the topic trend reaches its popularity. In this case, the width of the line is proportional to the level of collaboration. China, Germany, India, United Kingdom, and USA are also publication centers with many red lines visible between these countries and other countries regarding publications.

Country Collaboration Map

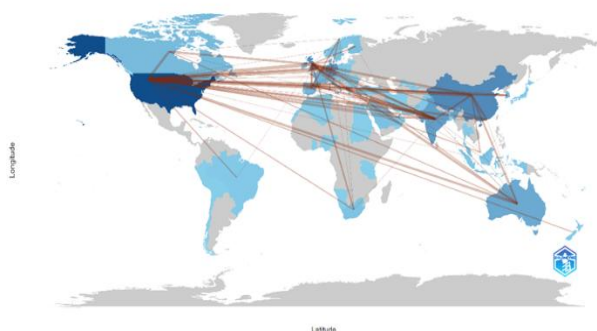


Figure 8 Research developments based on country collaboration

e. Research on Users' Data Privacy Awareness on Social Media in the Digital Age based on trending topics.

The circles seen in figure 9 show the frequency of occurrence of certain keywords, with the horizontal line representing the time span between the first quartile and the third quartile when the term was popular. Based on the analysis of 2377 occurrences of words in User Data Privacy Awareness on Social Media in the Digital Age, there are 21 topics that

became trending topics from 2016 to 2024. The trend began in 2016 with the emergence of topics such as information technology data mining, and public policy, which became the forerunner of attention to data processing and digital policy. 2017 was characterized by increased interest in cellular telephones, confidentiality, and education, reflecting the growing use of mobile devices and the importance of information protection in the education system. In 2018, topics such as risk assessment and information dissemination began to be discussed, indicating a growing awareness of digital risks and the importance of accurate and secure information dissemination.

A major shift occurred from 2019 to 2020, when the topics of data privacy, human, surveys, and social networking (online) began to take center stage. 2020 was a turning point with the emergence of topics such as covid-19, telemedicine, differential privacy, privacy, and privacy concerns that spiked dramatically due to the pandemic. These topics are closely related to the need for digital services, data protection, and human interaction in online platforms. The years 2021 to 2023 saw a peak in the frequency of use of keywords such as security, which became the most dominant topic, reflecting the urgency of protecting information systems in the digital era. The topics of sales, commerce, and articles also trended in this period, showing the link between the development of e-commerce and the contribution of scientific literature between the development of e-commerce and the contribution of scientific literature to evolving digital issues.

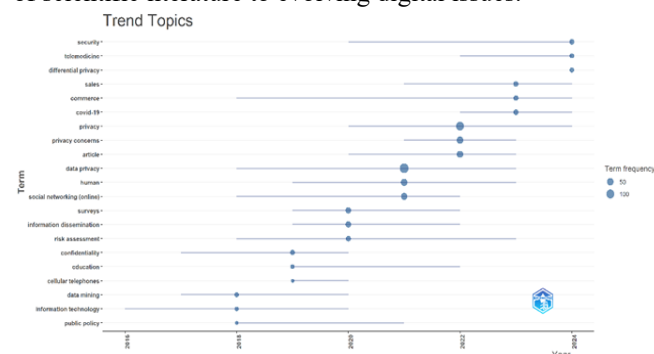


Figure 9 Research developments based on trends topic

f. Research on Privacy Awareness, User Data, Social Media, and Digital Era based on Co-occurrence Networks.

Based on the Figure above, it can be observed that there are two main clusters that are interconnected and form a keyword network structure. The first cluster is shown with red nodes, with the dominant keywords being data privacy, privacy, and social networking (online). This cluster illustrates the connection between data privacy issues and various topics such as user privacy, information management, covid-19, social media, behavioral research, commerce, and the latest technologies such as blockchain, artificial intelligence, and internet of things. This shows that discussions about privacy are not only limited to technical aspects, but also involve

“Development and Trend of User Data Privacy Awareness in the Use of Social Media in the Digital Era Using Bibliometrix Analysis”

social, economic, and user behavior aspects in the digital world.

Meanwhile, the second cluster is shown with blue nodes, which are dominated by the keywords human, article, and humans. This cluster includes topics that focus on the human aspect of research, such as male, female, adult, young adult, trust, and human experiment. Several other keywords such as computer security, ethics, mobile applications, and confidentiality also appear as part of this cluster, indicating a connection between the study of human behavior and issues of digital security and trust in the use of technology. The connection between these two clusters shows that data privacy issues are closely related to human factors, both in terms of users, behavior, and protection of personal identity in cyberspace.

Based on the cumulative degree plot of keywords in mobile exploration, data privacy is a keyword with a plot degree of 1.00. This is accompanied by Privacy, human, article, privacy concern, humans, female, social networking (online), male, adult, personal information, social media, surveys, human experiment, information dissemination, identifiable information, behavioral research, decision making, major clinical study, internet, online privacy with degrees of 0.796, 0.663, 0.551, 0.382, 0.371, 0.367, 0.342, 0.339, 0.332, 0.273, 0.251, 0.217, 0.216, 0.212, 0.208, 0.191, 0.188, 0.187, 0.176, and 0.175.

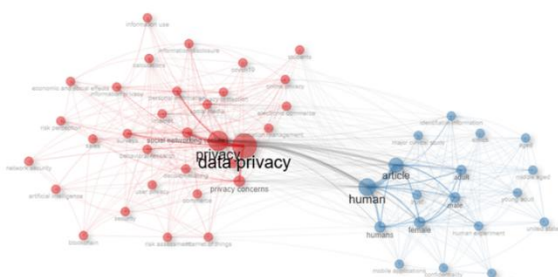


Figure 10 Research developments based on co-occurrence networks

B. Trends in User Data Privacy Awareness on Social Media in the Digital Age.

Analysis methods are responsible for data visualization through maps, such as social networks and two-dimensional maps. Network analysis also allows for statistical analysis of the resulting maps to show the different relationships between the various clusters detected. Visualization illustrates the results of the analysis contained in scientific maps, such as thematic maps, where the thematic map shows a network that indicates the proximity between objects that have something in common.

However, the purpose of this analysis is to determine the conceptual, intellectual, or social evolution of a field of study by identifying patterns, trends, seasonality, and outliers. The main objective of this analysis is to identify features that have a high intensity in a limited amount of time. In this context, a

series of clusters and thematic areas are used to describe the evolution over several time periods [23].

a. Thematic Map

The thematic map analysis of Privacy Awareness, User Data and Social Media is associated with two dimensions, namely density and centrality. Furthermore, the themes on the thematic map are grouped based on 4 different categories, namely Motor Themes, Niche Themes, Emerging or Declining Themes and Basic Themes.

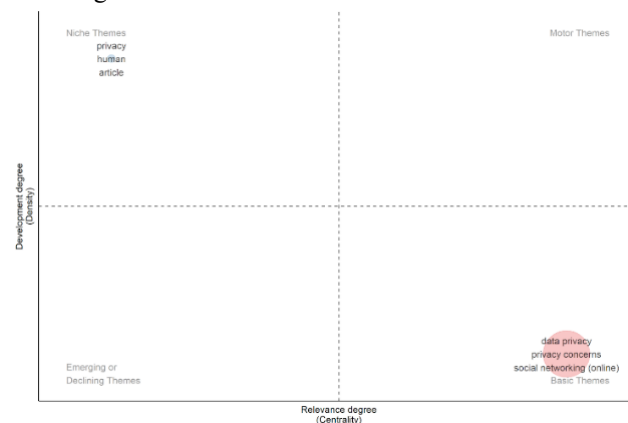


Figure 11 Thematic Map

Based on Figure 11 privacy, hulten and article are part of Niche Themes located in the upper left quadrant. Data privacy, privacy concerns, and social networking (online) are part of the Basic Themes located in the lower right quadrant. In Basic Themes Data privacy, privacy concerns, and social networking (online) have a high level of centrality but have a low level of density which indicates that these topics are important in the scientific structure but have not been studied in depth, which can be seen in table 2.

Table 2 Visual interpretation based on thematic map clusters

Clusters	RankCentrality	RankDensity
data privacy	2	1
privacy	1	2

CONCLUSIONS

RQ1: How does awareness of user data privacy on social media in the digital era develop from 2014 to 2024?

The development of User Data Privacy Awareness in Social Media in the Digital Era based on the publication of articles from 2014 to 2016 found no significant development in the number of publications. The number of article publications began to increase in 2017 with 22 articles and continued to increase to 174 articles in 2024. The average citation peaked in 2015 and 2020 with an average citation of 21.52 and 6.94. Computers In Human Behavior is ranked first with the highest number of publications, namely 14 articles.

Information System Research is ranked last with 7 articles published. Chatterjee.S. and Chaudhuri.R ranked first and second with 19 articles each. Based on the analysis of 2377 word occurrences in user data privacy awareness on social media in the era of digital security, telemedicine, differential privacy which is trending until now in 2024. Data privacy, privacy concern, social network (online) are trending topics for further research.

RQ2: What are the trends regarding user data privacy awareness on social media in the digital era in the future world?

The trends of User Data Privacy Awareness in Social Media in the Digital Age can be seen on the thematic map. There are 2 different categories in the thematic map including Niche Themes, and Basic Themes. Research trends can be seen in the Basic Themes where Data privacy has a high centrality and low density ranking. Data privacy has a centrality rating of 2 and a density rating of 1.

REFERENCES

1. Y. Suppiah et al., “Awareness and Privacy Perceptions among Social Media User towards Social Data Analytics,” 2016.
2. G. Beigi, “Social Media and User Privacy,” Jun. 2018, [Online]. Available: <http://arxiv.org/abs/1806.09786>
3. K. Lee and P. Attablayo, “Examining the impacts of privacy awareness on user’s self-disclosure on social media.”
4. R. Rughiniş, C. Rughiniş, and D. Rosner, “From Social Netizens to Data Citizens: Variations of GDPR Awareness in 28 European Countries.”
5. A. Padyab, T. Päivärinta, A. Ståhlbröst, and B. Bergvall-Kåreborn, “Awareness of Indirect Information Disclosure on Social Network Sites,” *Social Media and Society*, vol. 5, no. 2, 2019, doi: 10.1177/2056305118824199.
6. L. Baruh, E. Secinti, and Z. Cemalcilar, “Online Privacy Concerns and Privacy Management: A Meta-Analytical Review,” *Journal of Communication*, vol. 67, no. 1, pp. 26–53, Feb. 2017, doi: 10.1111/jcom.12276.
7. N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, and W. M. Lim, “How to conduct a bibliometric analysis: An overview and guidelines,” *J Bus Res*, vol. 133, pp. 285–296, Sep. 2021, doi: 10.1016/j.jbusres.2021.04.070.
8. O. Martorell Cunill, A. Socias Salvá, L. Otero Gonzalez, and C. Mulet-Forteza, “Thirty-fifth anniversary of the International Journal of Hospitality Management: A bibliometric overview,” *Int J Hosp Manag*, vol. 78, pp. 89–101, Apr. 2019, doi: 10.1016/j.ijhm.2018.10.013.
9. H. W. Awalurahman, I. H. Witsqa, I. K. Raharjana, and A. H. Basori, “Security Aspect in Software Testing Perspective: A Systematic Literature Review,” *Journal of Information Systems Engineering and Business Intelligence*, vol. 9, no. 1, pp. 95–107, Apr. 2023, doi: 10.20473/jisebi.9.1.95-107.
10. A. Syahid and N. Mukminatien, “Thirty years of teflin journal: A bibliometric portrait through the lens of microsoft academic,” *Teflin Journal*, vol. 32, no. 1, pp. 134–166, Jan. 2021, doi: 10.15639/teflinjournal.v32i1/134-166.
11. Maalej Aicha and Kallel Ilhem, Does Keystroke Dynamics tell us about Emotions? A Systematic Literature Review and Dataset Construction. IEEE, 2020.
12. J. Baas, M. Schotten, A. Plume, G. Côté, and R. Karimi, “Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies,” *Quantitative Science Studies*, vol. 1, no. 1, pp. 377–386, Feb. 2020, doi: 10.1162/qss_a_00019.
13. M. Aria and C. Cuccurullo, “bibliometrix: An R-tool for comprehensive science mapping analysis,” *J Informetr*, vol. 11, no. 4, pp. 959–975, Nov. 2017, doi: 10.1016/j.joi.2017.08.007.
14. Yang Fengmei, Gao Jinming, and Kan Xianzhao, “Biblioshiny-R Application on Bioinformatics Education Research (2004-2023),” *Curriculum and Teaching Methodology*, vol. 7, no. 8, 2024, doi: 10.23977/curtm.2024.070829.
15. A. M. Saputri and S. Syaifullah, “DEVELOPMENTS AND TRENDS IN CYBERSECURITY AGAINST HUMAN FACTORS AND TIME PRESSURE USING BIBLIOMETRIC ANALYSIS,” *IJCCS (Indonesian Journal of Computing and Cybernetics Systems)*, vol. 18, no. 1, p. 107, Jan. 2024, doi: 10.22146/ijccs.92636.
16. J. R. Saura, D. Palacios-Marqués, and D. Ribeiro-Soriano, “Privacy concerns in social media UGC communities: Understanding user behavior sentiments in complex networks,” *Information Systems and e-Business Management*, Mar. 2023, doi: 10.1007/s10257-023-00631-5.
17. P. K. Masur and M. Scharkow, “Disclosure Management on Social Network Sites: Individual Privacy Perceptions and User-Directed Privacy Strategies,” *Social Media and Society*, vol. 2, no. 1, Jan. 2016, doi: 10.1177/2056305116634368.
18. M. J. Cobo, A. G. López-Herrera, E. Herrera-Viedma, and F. Herrera, “Science mapping software tools: Review, analysis, and cooperative study among tools,” *Journal of the American Society for*

“Development and Trend of User Data Privacy Awareness in the Use of Social Media in the Digital Era Using Bibliometrix Analysis”

- Information Science and Technology, vol. 62, no. 7, pp. 1382–1402, Jul. 2011, doi: 10.1002/asi.21525.
19. M. Afzaal et al., “Bibliometric, network, and thematic mapping analyses of metaphor and discourse in COVID-19 publications from 2020 to 2022,” 2023.
20. A. Parlina, K. Ramli, and H. Murfi, “Theme mapping and bibliometrics analysis of one decade of big data research in the scopus database,” *Information (Switzerland)*, vol. 11, no. 2, Feb. 2020, doi: 10.3390/info11020069.
21. D. D. Mühl and L. de Oliveira, “A bibliometric and thematic approach to agriculture 4.0,” *Heliyon*, vol. 8, no. 5, May 2022, doi: 10.1016/j.heliyon.2022.e09369.
22. A. Abdollahi, K. Rejeb, A. Rejeb, M. M. Mostafa, and S. Zailani, “Wireless sensor networks in agriculture: Insights from bibliometric analysis,” Nov. 01, 2021, MDPI. doi: 10.3390/su132112011.
23. M. J. Cobo, A. G. López-Herrera, E. Herrera-Viedma, and F. Herrera, “An approach for detecting, quantifying, and visualizing the evolution of a research field: A practical application to the Fuzzy Sets Theory field,” *J Informetr*, vol. 5, no. 1, pp. 146–166, Jan. 2011, doi: 10.1016/j.joi.2010.10.002.