
Research Mapping on Personal Data Protection Policy

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Abstract

Kebutuhan akan adanya Perlindungan Data Pribadi harus didukung dengan kebijakan yang mampu menjamin keamanan informasi pribadi agar tidak disalahgunakan oleh oknum yang tidak bertanggungjawab. Perkembangan penelitian mengenai kebijakan perlindungan data pribadi dapat menjadi acuan yang baik bagi pemerintah dan stakeholder dalam merumuskan kebijakan yang mampu menjamin keamanan data pribadi. Penelitian ini bertujuan untuk mengetahui tren penelitian dan menjelaskan hubungan antar kata kunci serta peneliti dalam artikel penelitian tentang kebijakan perlindungan data pribadi. Penelitian ini menggunakan metode analisis bibliometrix yang dibantu dengan alat VOS Viewer dan Biblioshiny Rstudio sehingga dapat menampilkan visualisasi jaringan yang menarik. Temuan dari penelitian ini yaitu perkembangan publikasi penelitian topik terkait dari tahun ke tahun, pemetaan subjek area dari publikasi penelitian topik terkait, pemetaan negara asal publikasi penelitian pada topik terkait, hubungan antar penulis/peneliti, hubungan antar kata kunci dari sejumlah artikel penelitian topik terkait, sebaran jurnal yang mempublikasikan artikel penelitian topik terkait, dan produktivitas dari peneliti/penulis artikel topik terkait.

Kata kunci: Kebijakan Perlindungan Data Pribadi, Analisis Bibliometrix, Visualisasi Jaringan.

Abstract

The need for Personal Data Protection must be supported by policies that are able to guarantee the security of personal information so that it is not misused by irresponsible persons. The development of research on personal data protection policy can be a good reference for the government and stakeholders in formulating policies that can guarantee the security of personal data. This study aims to determine research trends and explain the relationship between keywords and researchers in research articles on personal data protection policies. This study uses the bibliometric analysis method assisted by the VOS Viewer and Biblioshiny Rstudio tools so that it can display interesting network visualization. The findings from this study are the development of research publications on related topics from year to year, mapping of subject areas of research publications on related topics, mapping of countries of origin of research publications on related topics, relationships between authors/researchers, relationships between keywords from a number of research articles on related topics, distribution of journals that publish research articles on related topics, and productivity of researchers/writers of articles on related topics. The results of this study can help researchers find novelty opportunities and use appropriate reference sources in conducting research on related topics.

Keywords: Personal Data Protection Policy, Bibliometric Analysis, Network Visualization.

INTRODUCTION

In today's digital era, almost all activities are integrated with technology to provide convenience, for example through various digital applications. In accessing the application, not infrequently users are required to enter their personal data for the benefit of the application provider company. But it is undeniable that sometimes application provider companies do not have an adequate security system in protecting their users' personal data so that there is a problem of personal data leakage and ends up in misuse of individual personal data by irresponsible people. (Delpiero et al., 2021) The development of data collection and analysis technology has given rise to a market on the website in the form of selling data to third parties and data monetization. (Gopal et al., 2023) The emergence of these various problems also raises awareness of privacy by users so that users need the implementation of an application system that increases the protection of personal data processing. Privacy policies are (Sangaroonsilp et al., 2023) becoming important for policymakers and researchers in conducting compliance assessments, but requests for data through privacy policies are rare (Petelka et al., 2022). Compliance ensures the protection of personal data in web developers also sometimes cannot be enforced as GDPR laws. (Ferreira et al., 2022) GDPR laws in Europe continue to be developed that are adaptive to technological developments, one of which is IoT which provides a new type of data collection and processing system so that there is a need for standardization related to data transfer across devices (Turner & Tanczer, 2024). However, it is undeniable, the application of GDPR Law in Europe is still misaligned with other European countries because each country has its own laws that are determined based on procedures and time legally. (Puljak et al., 2023) In the realm of government, good data management is considered to improve the efficiency of public administration. The government should establish clear controls in the Data Protection Law so that there is comprehensive and effective protection. Some problems in the protection of personal data (Purtova & Pierce, 2024) are reflected in previous research such as in the Russian state, data management systems do not consider the subject of personal data. Then in carrying out digital activities, (Bundin et al., 2022) *cookies* collected by a site also have a privacy impact on users. Similarly, the personal data of users managed by communication companies sometimes still does not comply with the Personal Data Protection Law set by a country. (Pantelic et al., 2022) (Alibeigi et al., 2022)

Through previous research relevant to the topic of Personal Data Protection Policy includes, among others. First, an article written by M. S. Alashry discusses the effectiveness of the Personal Data Protection Law in Egypt as seen from journalists' perceptions. Second, an

article by S. Yungratog, F. Goerlandt, et al that discusses the conceptual framework for assessing personal data security risks in the maritime industry. Third, an article by D. Yuniarti and S. Ariyanti that discusses recommendations to the Indonesian government in supporting the passage of the Personal Data Protection Law in Indonesia through comparative analysis with several countries. Fourth, an article by P.A. Bonnati, and L. Sauro that discusses the encoding of data use policies and the protection of personal data through a way that is understandable by machines. Fifth, an article by K.I.C Pena and Y.A.M Jaramillo discussing the case of the Coron App application in Colombia that did not comply with the application's data processing policy. Through various references to the article, it appears that related research topics are quite diverse consisting of various sectors such as application companies, maritime industry, journalism, and government. So in expanding the identification of research reference sources with the topic of personal data protection policy, researchers use bibliometric analysis methods to find scientific information from various articles(Alashry, 2022)(Yungratog et al., 2022)(Yuniarti & Ariyanti, 2022)(Bonatti & Sauro, 2022)(Peña & Jaramillo, 2022) using several international journal databases, and VOS Viewer software.

According to Cresswell, *research questions* are one or two of the broadest and most common questions about the phenomenon under study.(Study Higher, 2021) This study will answer two questions, namely how the trend of research publications on related topics and how the relationship between keywords and between researchers in publications and research articles related to related topics. Good *research questions* can lead researchers to stay focused on the topic under study and direct what reading sources can be used. The purpose of this study is to determine research trends from related topics and explain the relationship between keywords and researchers in research articles on personal data protection policies so that they can find opportunities while helping researchers who want to research related topics.

The systematics of article writing generally includes titles, author names, abstracts, keywords, introductions, methods, results, discussions, conclusions and suggestions, *acknowledgement*, and bibliography (Slameto, 2016) . In the preparation of this article, the introductory chapter will discuss the background, problem statement, and objectives. Then in the literature review chapter, researchers will explain the explanation of the concepts used in research, the research methods chapter which contains research steps, the results and discussion chapter will display data visualization, explanation, and a little comparison and finally in the conclusion chapter which will provide recommendations for further research.

The Personal Data Law was created to guarantee the right to personal protection and to make the public aware of the importance of personal data protection. (Jannah, 2022) The fundamental rights of the EU charter in article 8 states that everyone has the right to protection of data concerning him. Personal data held by an individual must be processed fairly for a specific purpose and there is consent from the person concerned or other legal bases stipulated by law. (Irion et al., 2021)

The study of literature related to the topic of Personal Data Protection Policy does not only focus on the public sector, but also on the business sector. As in an article written by M. S. Alashry (2022), researchers assessed the effectiveness of the Egyptian Personal Data Protection Law No.151 of 2020 and its implications on press freedom in Egypt. The study used quantitative methods and in-depth interviews with journalist representatives. The results show that Egypt's Personal Data Protection Law is hampering media independence in Egypt, as it is possible that government control over information will be greater through the establishment of digital policies and regulations for journalists. Furthermore, in an article written by D. Yuniarti and S. Ariyanti (2022), researchers recommend the urgency of the Personal Data Protection Policy in the implementation of IBB (*integrated broadcast-broadband*) in the field of television broadcasting which reflects on the results of comparisons with Singapore, Japan, and Malaysia. Then no less interesting is also the relationship with healthcare applications in an article written by K.I.C Pena and Y.A.M Jaramillo (2022), researchers discuss internal regulations on personal data protection in Colombia which contrast with data processor policies on the CoronApp application. CoronApp is considered to lack compliance with legal requirements, causing a lack of personal data protection.

Bibliometric methodology is already established as the primary tool used to evaluate research performance in a variety of fields, including health, science, social, toxicology, engineering, and environmental studies. Bibliometric analysis can also be used to determine the distribution of publications and citations in various literature sources and can be explained in both quantitative and qualitative topics (MAUDISHA, 2022). In addition, bibliometric analysis can be said to be a quantitative method for analyzing bibliographic data on journal articles as (Effenfy et al., 2021) well as being an instrument for researchers who have a desire to pursue retrospectives in a broad field (Herawati et al., 2022). There are four benefits to using bibliometric analysis: analyzing trends in research, discovering new or emerging areas of research, identifying people who will collaborate on research, and identifying sources that are appropriate for publication.

VOS Viewer is a *piece of software* used in building or describing bibliometrix networks. The network consists of several categories such as researchers, journals, citations, and relationships between authors. VOS Viewer is able to read various data derived from various databases such as Web of Science, Scopus, Pubmed, RIS, EndNote, RefWorks, and so on. In making these visualizations, there are three alternatives that can be used, namely based on network data, (Sumarno, 2021) *bibliographic* data, and *text data* (Prasetyo, 2020). The use of VOS Viewer is inseparable from bibliometrix because bibliometrix is used to analyze data, while VOS Viewer is used to create visual network maps that project collaboration and trending research topics. VOS Viewer can be a means of finding topic opportunities that allow to be researched and looking for articles by mapping articles.

METHODS

In preparing the stages of collecting document data to be analyzed by the study, researchers use the help of the PRISMA scheme which consists of *identification*, *screening*, *eligibility*, and *inclusion* which can be seen in Figure 1.

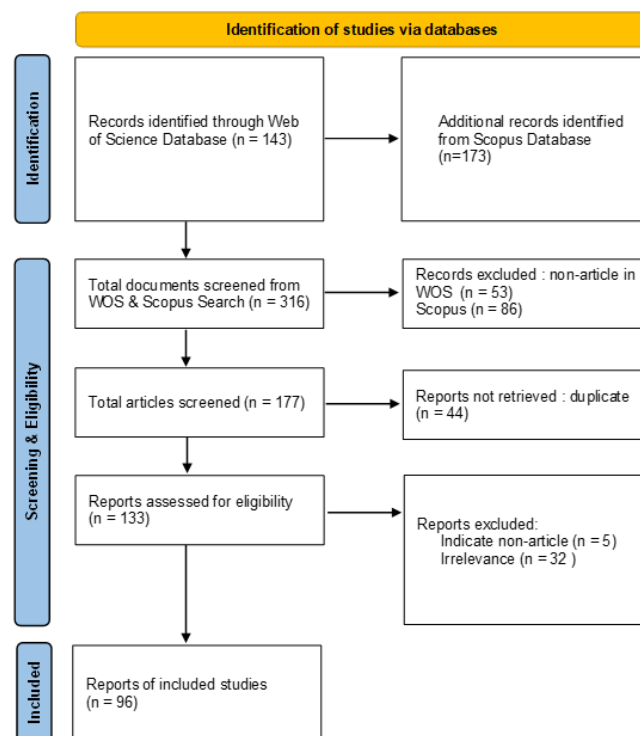


Figure 1. Stages of Data Collection

Source: PRISMA

The first stage begins with the *identification* stage. At this stage researchers use two *databases*, namely Web of Science (WOS) and Scopus. Researchers wrote the search engines of both *databases* with (TITLE-ABS-KEY ("*personal data protection*") AND TITLE-ABS-KEY (policy). The writing is intended so that the documents that appear in both *databases* can

be ascertained to have a relationship with *personal data protection* in the realm of *policy*. The Web of Science database displays search results found as many as 143 documents and the Scopus database as many as 173 documents bringing the temporary total to 316 documents.

The second stage is the *screening* stage. Researchers limit the number of documents in each *database* based on the type of documents to be used in the analysis, namely research articles. In the Web of Science and Scopus databases, researchers use the *exclude* feature to limit document types. *The* Web of Science database shows 53 documents are not research articles and *the* Scopus database shows 86 documents are not research articles. So the total documents that have been selected are 177 articles. Furthermore, researchers *re-screened* by eliminating duplicate articles. This elimination aims to keep multiple articles counted one when analyzed. In doing the elimination, researchers use Zotero software. Researchers first exported articles from two *databases* in the form of BibTex and then both export results were imported into Zotero software. Researchers found as many as 44 research articles indicated duplicates.

The third stage enters the *stage of eligibility*. The number of temporary articles that have been reduced by articles indicated to be duplicates is 133 articles, then reviewed their relevance to ensure that the articles are worthy of analysis. In assessing the feasibility of the article, researchers again used Zotero software. Researchers found as many as 5 articles that were not really included in the type of research article because the document showed the type of *book section* document. Researchers also assess the feasibility of their relevance to the topic using speed reading techniques (*skimming*) the title and abstract of each research article. Researchers found as many as 32 research articles that were less relevant to the topic because these articles did not fully review the policies and regulations of personal data protection but only mentioned them as part of the research.

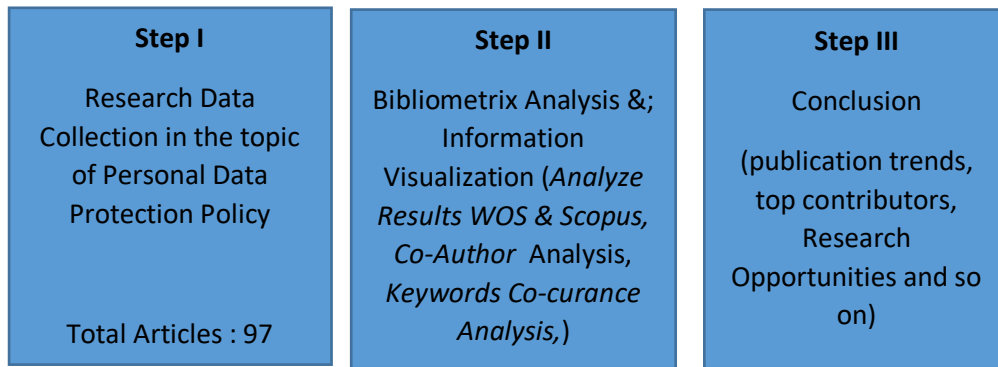


Figure 2. Bibliometrix Analysis Steps

Source: researcher

The last stage is *included*. This stage simply calculates the final number of research articles to be analyzed. The total research articles to be analyzed in this study are 96 research articles. After the data on the number of research articles has been determined, then in conducting bibliometric analysis can be shown an outline of the steps as in Figure 2.

RESULTS AND DISCUSSION

Analyze Result Database

In order to find out the summary results of research topic publications searched in Web of Science and Scopus databases based on certain categories, researchers use the *analyze result* feature to generate trend images of publication year, subject area, and country of research. The *analyze result* feature can be said to be quite effective for finding trends in academic publications because there are many choices of categories that can be used to see an overview of the topic that will be researched.

Publication Years

In this section, researchers do not limit the types of documents published only to articles so that readers can see how the development of academic publications from related topics and when related topics become attention to be reviewed by researchers through published papers.

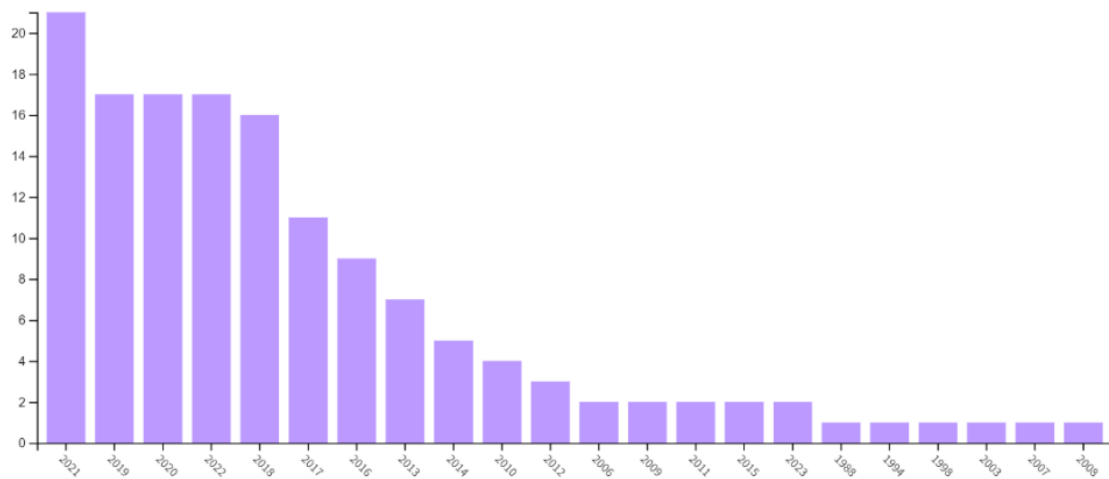


Figure 3. Distribution of Number of Publications by Year
Source: Web of Science

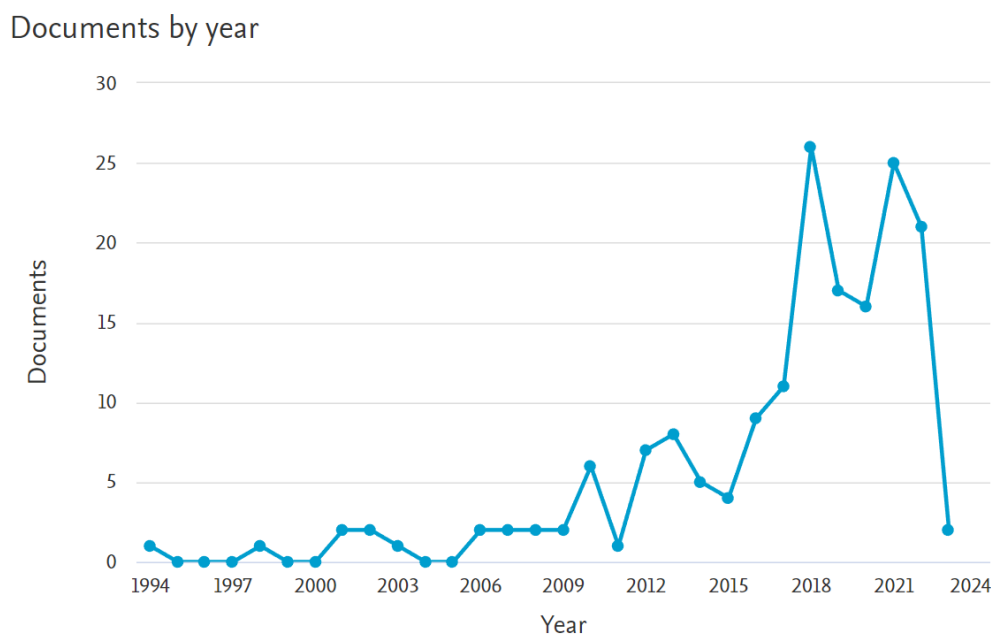


Figure 4. Distribution of Number of Publications by Year
Source: Scopus

Figure 3 and Figure 4 show that publications on Personal Data Protection Policy existed before the 20th century, but not in large numbers, on average only once per year. Publications on related topics seem to have begun to develop in the 20th century, especially above 2010. Significant publication growth was seen in 2017-2018. The Web of Science database shows an increase of 5 publications, while the Scopus database shows an increase of 15 publications. The highest number of publications in the Web of Science database was in 2021 with 21 publications, while in the Scopus database there were 26 publications in 2018. In addition,

through the two images above also show that above 2018, each year it is able to reach more than 15 publications.

Subject Area

In this section, the results of publications in the *database* are mapped based on the field of study that addresses the topic of personal data protection policy. Through this mapping, we can find what fields of study are often related to the topic we will research. The mapping results will be presented in colored boxes accompanied by numbers indicating the number of research articles in related topics produced by each field of study.

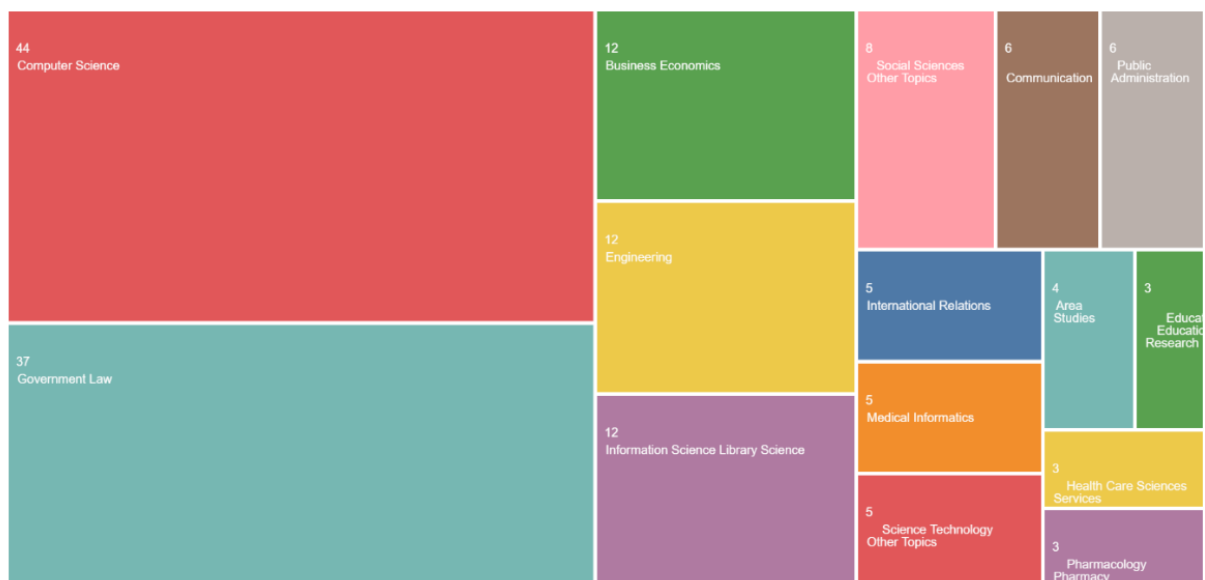
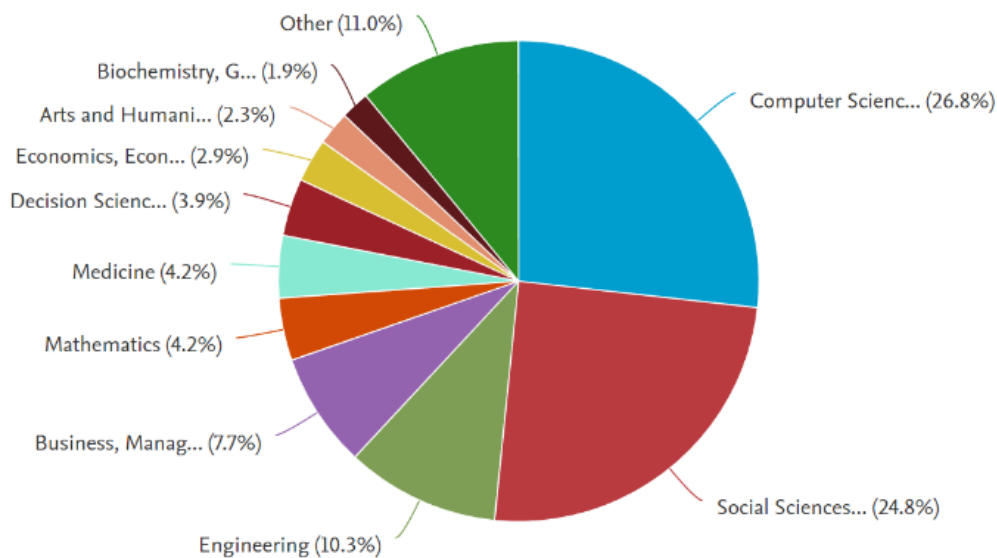


Figure 5. Subject Areas
Source: *Web of Science*

Documents by subject area

**Figure 6. Subject Areas**

Source: Scopus

Figure 5 and Figure 6 show that publications in the topic of Personal Data Protection Policy tend to be towards the Computer Science field of study. In the mapping table generated by the Web of Science *database* shows that the field of study Computer Science accounted for as many as 44 publications. In the Scopus *database* mapping diagram also shows that the Computer Science field dominates in related topic publications by 26.8% of 173 publications i.e. 83 publications. Furthermore, the second field of study that dominates publications in related topics on the Web of Science *database* is Government Law with a total of 37 publications. The Scopus *database* shows that the second dominance is in the field of Social Science studies with 24.8% publications or 77 publications. In addition, we can know that the discussion of personal data protection policy has a scope of fields of study that are not limited to computer science or social sciences but can also touch others such as engineering, business, medical science, information and library science, public administration, and so on as shown above.

Country/Territory

In this section, the results of publications in the *database* are compared based on the country of origin of publications that discuss related topics. Through this comparison, we can find which countries publish a lot and have more attention on related topics.



Figure 7. Publications by Country

Source: *Web of Science*

Documents by country or territory

Compare the document counts for up to 15 countries/territories.

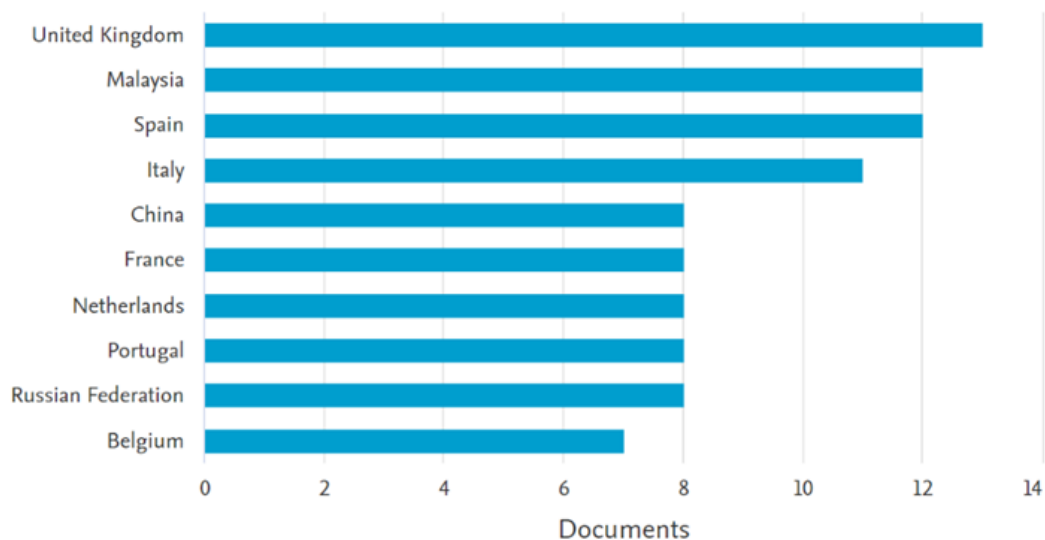


Figure 8. Publications by Country

Source: *Scopus*

Through Figure 7 and Figure 8, publications on the topic of personal data protection policy show that the UK contributes the most to the publication of related topics. The Web of Science and Scopus databases both show that the United Kingdom and surrounding countries publish related topics as many as 13 publications. Then followed by other countries, namely Spain and Malaysia, which have only a slight difference in the number of publications owned by both. In this section, researchers find something interesting because one of the top three countries that publish a lot of related topics is a country from Southeast Asia, namely Malaysia.

Given that other countries are dominated by European countries and a few Asian countries which are influential countries in Asia (China and Russia).

Network Visualization

In this section, researchers display network images in various specific categories generated through VOS Viewer software. The data used in this section uses data on the number of publications that have gone through the data collection stage process, which is as many as 96 research articles. The visualization of this network consists of *co-authorship* and *keyword co-occurrence*.

Co-Authorship Analysis

Co-Authorship analysis in research articles on the topic of personal data protection policy was carried out to determine the relationship between researchers in compiling articles. Researchers use a minimum limit of one article for each researcher so that the *network visualization* contains 249 researchers who meet the threshold.

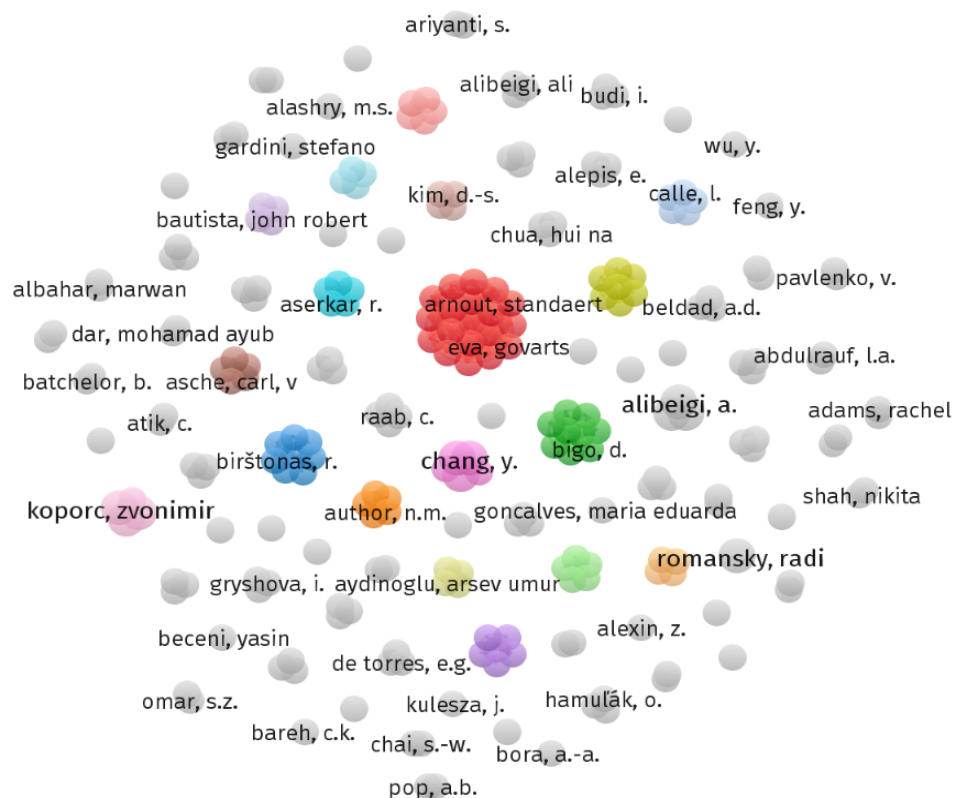


Figure 9. Network Visualization of Co-Authorship

Source: VOS Viewer

Figure 9 shows that there are 92 clusters based on the relationship between researchers. However, of the 92 clusters, there are 30 clusters showing researchers who have no relationship with other researchers at all so that only 62 clusters show a relationship between researchers. *The red cluster* shows the many relationships of 19 researchers included in producing research articles. This is also shown from the total *link strenght* owned by the red cluster reaching 476 links. Each researcher has 18 links in generating one article. For example, a researcher in the red cluster (figure 10) named Beltran Sergi has 18 links with other researchers in producing one document.

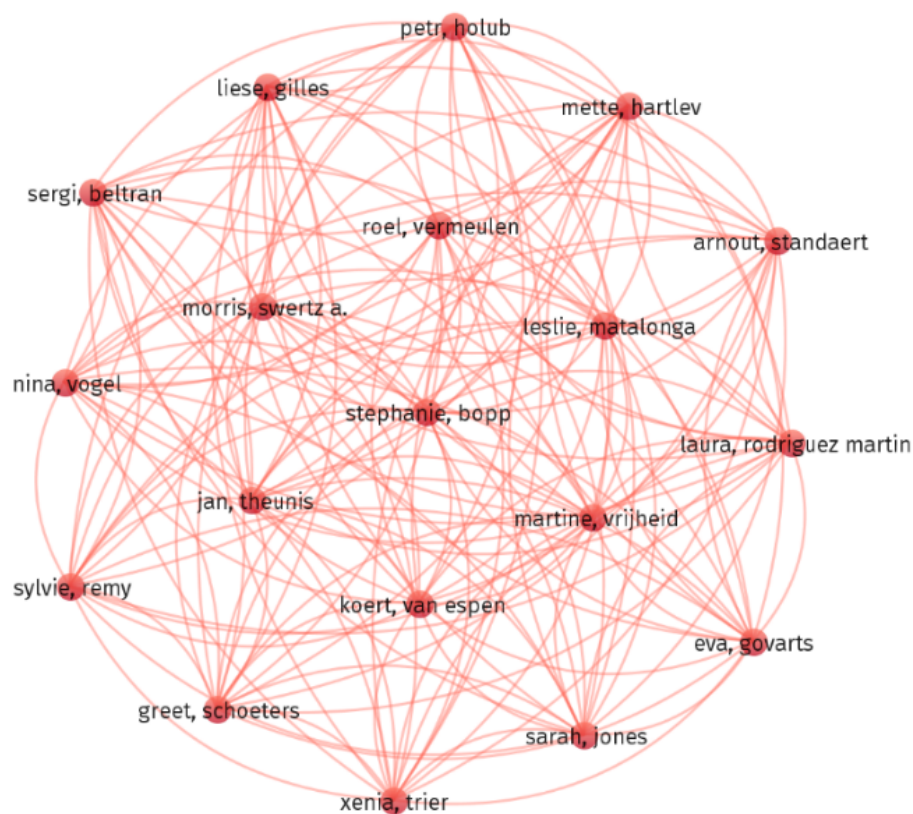


Figure 10. Network Visualization on Red Cluster

Source: VOS Viewer

Keyword Co-Occurance Analysis

Keyword Co-Occurance Analysis is used to find out the relationship between keywords in articles related to related topics so that we can find what keywords are most or least discussed in research articles in related topics. In making visualizations, researchers use a minimum limit of two words in a keyword to produce 55 keywords that meet the *threshold*.

But before pressing *finish*, researchers did not enter 15 keywords that were not right or had similar meanings with other keywords.

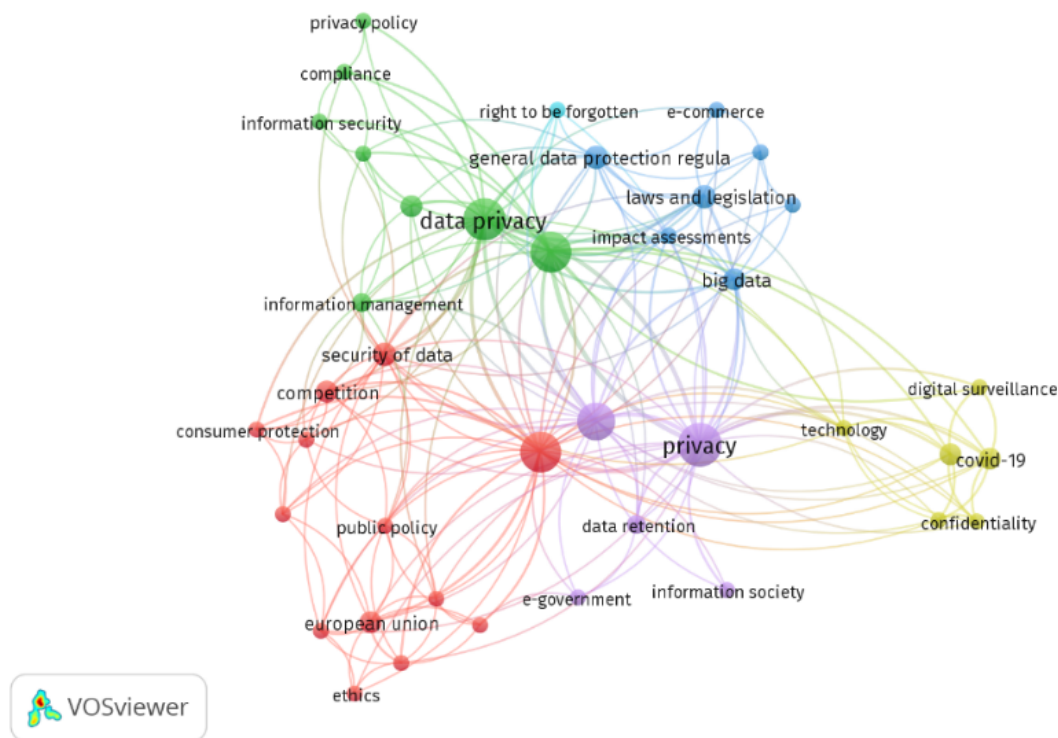


Figure 11. Network Visualization of Keyword Co-Occurance
Source: VOS Viewer

The results of network visualization as shown in Figure 11 show that there are 6 clusters represented in red (13 items), green (8 items), blue (7 items), yellow (6 items), purple (5 items), and light blue (1 item). Through the image, we can see that the keyword "personal data protection" (the largest ball) in the red cluster has 49 links and has a fairly strong relationship with the keyword "data privacy" in the green cluster shown in the total link strength. A total of 5 links. Given that the majority of relationships between keywords have only 1 link strength and the keyword "data privacy" is also a keyword that is widely discussed in research articles (indicated by the size of the circle in the picture). This shows that research on personal data protection related to data privacy has been widely conducted.

In addition, the keyword "personal data protection" also has a weak relationship with several other keywords when viewed from the distance between the two keywords. For example, the relationship between the keyword "personal data protection" with the keywords "public administration", "e-commerce", and "digital economy" which only has 1 strength link each. This weak relationship can then be an opportunity for researchers when they want to make

research on the topic of personal data protection policy which is associated with discussions that are still rarely discussed in previous research.

Biblioshiny Visualization

In this section, researchers will display visualization results that produce several summaries of the number of research articles in the topic of personal data protection policy using Rstudio's biblioshiny tools. As for through biblioshiny Rstudio produces *core sources*, and *author productivity*. *Core sources* relate to journals that are the core source of related research topics, while *author productivity* relates to the level of productivity of researchers or authors who research the topic related (how often the researcher or author re-examines the topic).

Core Sources by Bradford's Law

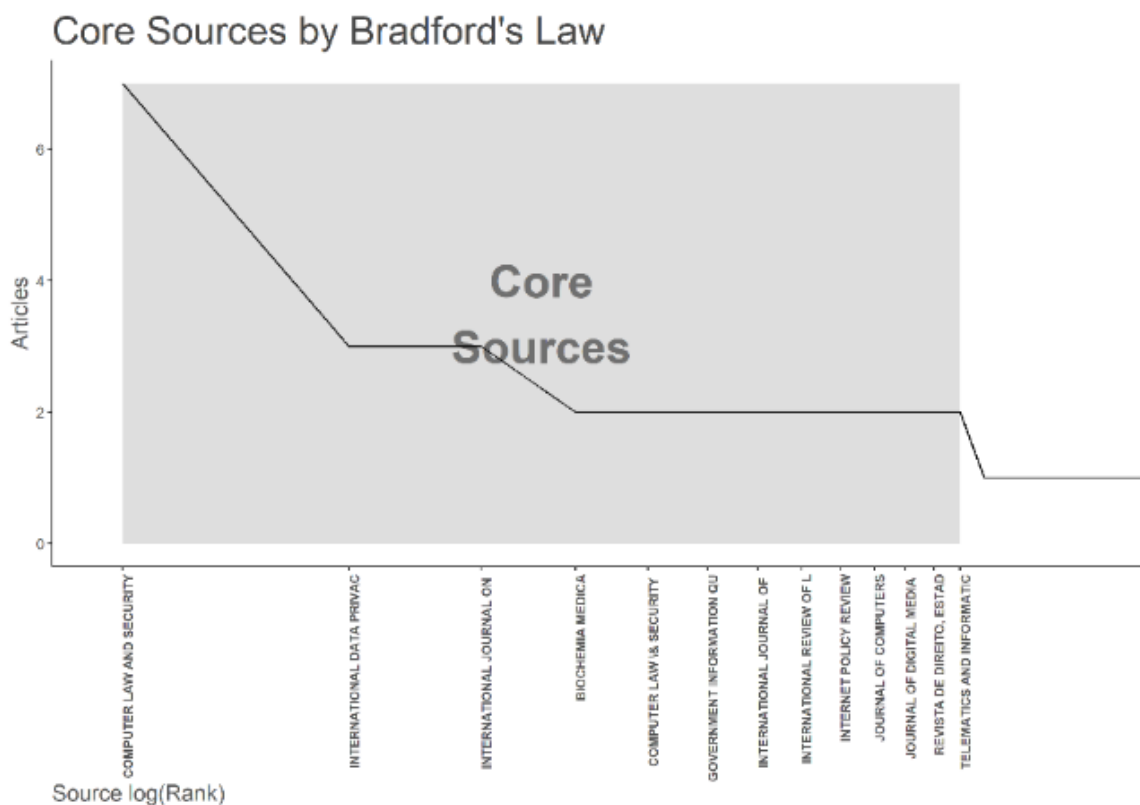


Figure 12. Distribution of Journal Sources Articles based on Bradford's Law

Source: *Biblioshiny Rstudio*

Figure 12 shows journals that contain research articles related to the topic of personal data protection policy. We can see that the *Journal of Computer Law & Security Review* is on the first line because it has the number of article publications on related topics as many as 6 articles or more than other journals. Then followed by the *Journal of International Data Privacy Law* which published 3 articles and the *Journal of International Information Technologies and*

Security with the number of publications as many as 3 articles. In addition, the distribution based on *Bradford's Law* also identifies 3 zones. The determination of zones 1-3 is based on the number of publications and the cumulative frequency. Zone I is occupied by journals that publish more than one article.

Author Productivity through Lotka's Law

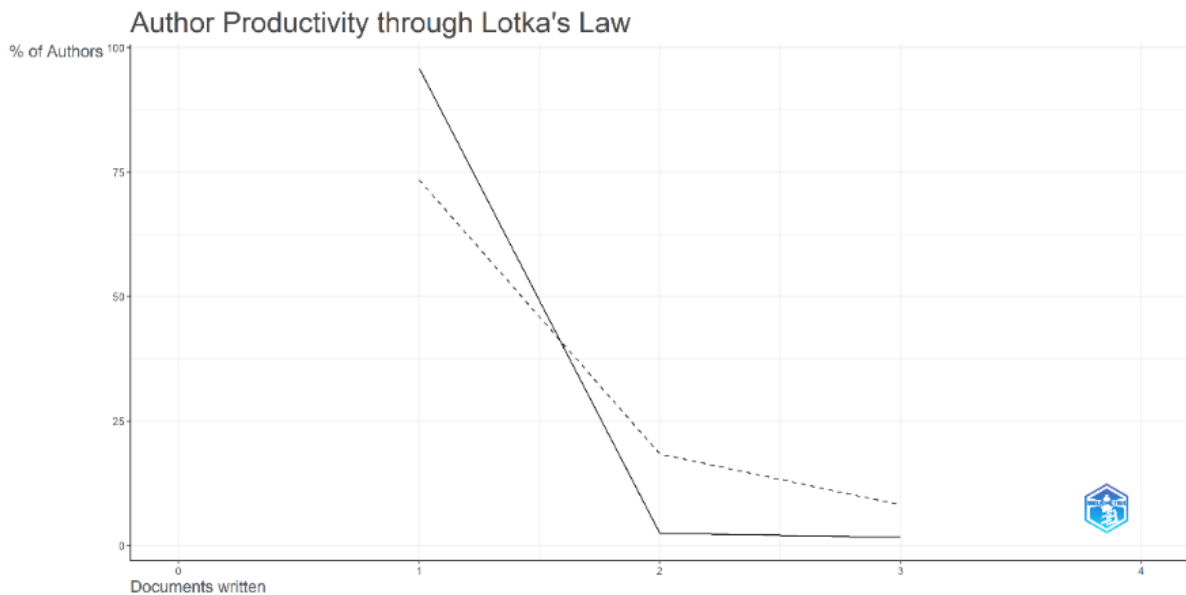


Figure 13. Productivity of Researchers under Lotka's Law

Source: *Biblioshiny Rstudio*

In Figure 13, the productivity of researchers in research articles shows that the majority of researchers who write articles on related topics write only one research article. This can be seen in the percentage shown in the % of *authors* which is 95.9% of the number of researchers in related topic articles ($n = 235$). The figure also shows that the number of researchers who are able to publish 3 research articles is only 1.6% of the number of researchers. So this shows that researchers who publish articles tend not to re-research related topics.

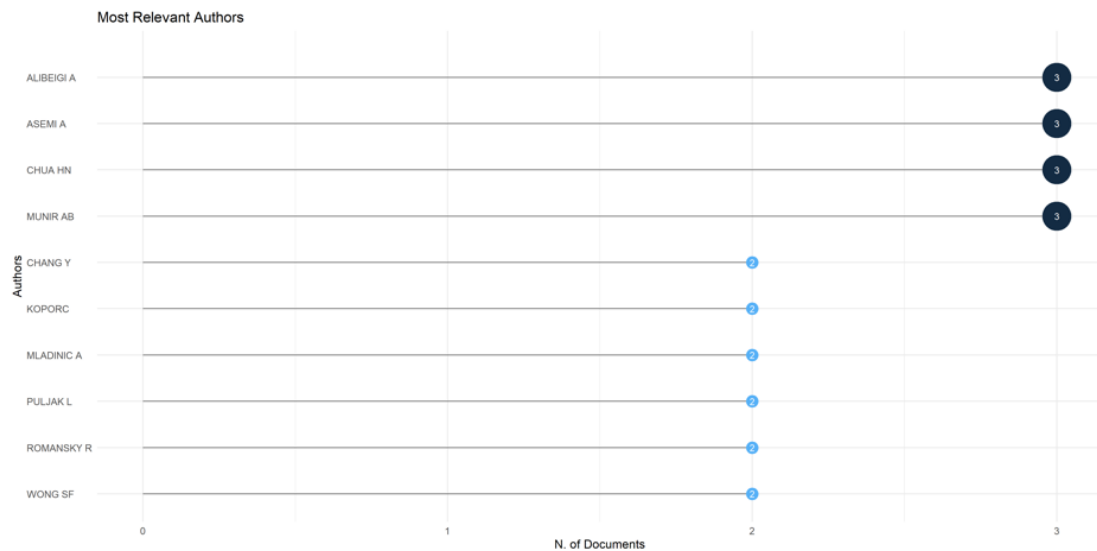


Figure 14. Researchers who contribute the most to the research topic

Source: *Biblioshiny Rstudio*

To add details from Figure 13. The researcher added a visualization of the researcher based on the number of published articles on related topics as shown in Figure 14. From the picture we can see that the top four researchers are Alibeigia A., Asemi A., Chua HN, and Munir AB. They have contributed quite a lot in the publication of research on personal data protection policy. This considerable contribution indirectly indicates that they have good knowledge or insight into personal data protection policies and have a high interest in researching personal data protection policies.

Based on the results of the *analyze result* feature in the Scopus journal database and Web of Science. Therefore, the overall publication of the personal data protection policies of the two *databases* can be seen a comparison of trends based on each category as in table 1.

Table 1. Comparison of Analyze Results from WOS & Scopus

	Web of Science	Scopus
Subject Area	Computer Science (30.7% of 143 documents)	Computer Science (26.8% of 173 documents)
Year of Publication	2021	2018
Country	English	United Kingdom

Source: data processed by researchers

Through Table 1, we can get an overview that can help researchers who want or are carrying out research on personal data protection policies. Researchers can look for massive reference sources in publications in the field of computer science to find concepts or terms that can be research material. This picture can also be used as an opportunity for researchers to make research that leads to other disciplines that still have relevance, such as public

administration. Within the year of publication, researchers can also benefit in terms of publication opportunities of works because the majority of publications in related topic research are in 2018 and 2021. Given one of the requirements in publishing research results in a journal, it generally requires researchers to use a list of references that are a maximum of the last 5-10 years. Furthermore, in the country section, researchers who want to conduct comparative studies between countries related to personal data protection policies can make publications originating from the United Kingdom and surrounding areas as references or subjects of countries to be compared.

Table2. Distribution of Top 10 Journal or Article Sources

Source	Rank	Freq	Zone
COMPUTER LAW AND SECURITY REVIEW	1	7	Zone 1
INTERNATIONAL DATA PRIVACY LAW	2	3	Zone 1
INTERNATIONAL JOURNAL ON INFORMATION TECHNOLOGIES AND SECURITY	3	3	Zone 1
BIOCHEMIA MEDICA	4	2	Zone 1
COMPUTER LAW & SECURITY REVIEW	5	2	Zone 1
GOVERNMENT INFORMATION QUARTERLY	6	2	Zone 1
INTERNATIONAL JOURNAL OF INFORMATION SECURITY AND PRIVACY	7	2	Zone 1
INTERNATIONAL REVIEW OF LAW, COMPUTERS AND TECHNOLOGY	8	2	Zone 1
INTERNET POLICY REVIEW	9	2	Zone 1
JOURNAL OF COMPUTERS	10	2	Zone 1

Source: Biblioshiny Rstudio

As shown in Figure 13, the trend graph of article sources created using the Biblioshiny tool in the Source by Bradford's Law feature, can be compared regarding the quantity of articles from the top 10 ranked journals with the most contributions in Table 2. Journal of Computer Law and Security Review can be an option in finding research sources regarding personal data protection policies. If you want to get reference sources consisting of complex disciplines, we can use reference articles from the journals International Data Privacy Law and Internet Policy Review. One article from the journal Computer Law and Security Review written by Christian Pauletto (2021) about the urgency of the existence of global standard personal data protection regulations uses a focus on the 1981 Council of Europe Convention on the protection of individuals in the processing of personal data (Convention 108+). Then one of the articles from the Internet Policy Review journal written by Kristina Irion et al. (2021) discusses how European Values in governance in Europe are considered to protect the human rights of their people and public interests in the midst of a global digital ecosystem.

CONCLUSION

Bibliometric analysis of research on personal data protection policies provides various conclusions from the visualization of data generated with tools in journal *database* features, VOS Viewer, and Biblioshiny. Research publications on personal data protection policies have been around since 1988 and experienced a significant increase in 2017-2018. The starting point of the increase in the number of publications was seen in 2010. The increasing number of publications can certainly be an opportunity for the development of public administration science, especially in the field of policy to protect public activities in the digital era. *The subject area* of research publications on personal data protection policies in both *databases* is predominantly computer science. Policy elements in these topics also influence the entry of social science subject areas and government law which also contribute to the progress of research. This indicates that related research topics are included in interdisciplinary discussions so that the government in formulating personal data protection policies certainly needs to involve competent actors in the field of computers or digital technology. Research on personal data protection policies has developed a lot in the United Kingdom and surrounding countries as evidenced by the large number of researchers who publish articles into journals. These results are historically quite relevant because the UK is a country that has set data protection policies since the 1970s. Furthermore, the strongest relationship between researchers is that in one document it is able to connect with 18 researchers and *the keyword* relationship consists of 6 interconnected clusters. *The keyword* "personal data protection" has a fairly strong relationship with the *keyword* "data privacy" which indicates that research that connects the two *keywords* has been raised a lot in research so that there will potentially be adequate information available for future researchers.

Suggestions from the results of this study to researchers who are or will discuss personal data protection policies can relate to *keywords* that are still rarely mentioned by other researchers as shown including "public administration", "e-commerce", "digital economy", and others that have not shown a close and strong relationship in the network. This is so that further researchers can find novelty in the research topic of personal data protection policy. Through the results of bibliometric analysis, researchers recommend interesting things to be discussed in future research, namely the optimization of personal data protection in the bureaucracy in a Regions, for example in the Population and Civil Registration Office which in its services always require data from service users. Considering that the field is also part of public administration.

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