

A bibliometric analysis of E-Democracy on government research

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ABSTRACT

This study aims to determine the development of research with the theme E-Democracy on Government in the last ten years from 2011 to 2020. The research method uses qualitative research with literature review or literature review. Data were collected by accessing journals on Scopus and obtaining 120 high-citation articles with ten years from 2010 to 2020. Data analysis used the Vosviewer and Nvivo 12 Plus applications. The results showed that 120 journals studied E-Democracy on Government from 2010 to 2020, with the most significant contributor being the United States. Government Information Quarterly is a popular journal with the most discussion on e-democracy. This study's limitation is that the articles reviewed were only obtained from the Scopus database, so they did not have comparable data. Consequently, future studies need to use a comparative analytical approach involving the Scopus database and the Web of Sciences (WoS).

ABSTRAK

Analisis Bibliometrik E-Demokrasi pada Riset Pemerintah. Penelitian ini bertujuan untuk mengetahui perkembangan penelitian dengan tema *E-Democracy on Government* dalam kurun waktu sepuluh tahun terakhir dari tahun 2011 hingga 2020. Metode penelitian menggunakan penelitian kualitatif dengan kajian pustaka atau *literature review*. Data dikumpulkan dengan mengakses jurnal di Scopus dan diperoleh 120 artikel bersitasi tinggi dengan rentang waktu 10 tahun dari 2010 hingga 2020. Analisis data menggunakan aplikasi Vosviewer dan Nvivo 12 Plus. Hasil penelitian menunjukkan terdapat 120 jurnal yang mengkaji *E-Democracy on Government* pada tahun 2010 hingga 2020 dengan negara penyumbang terbesar ialah United States. Government Information Quarterly menjadi jurnal yang populer dengan pembahasan e-demokrasi terbanyak. Keterbatasan dari penelitian ini adalah artikel yang direview hanya diperoleh dari database Scopus sehingga tidak memiliki data pembandingan. Akibatnya, studi masa depan perlu menggunakan pendekatan analisis komparatif yang melibatkan database Scopus dan Web of Sciences (WoS)

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Introduction

The development of electronic democracy (E-democracy) has been accepted globally as a democratic revolution regarding citizen participation in democratic activities. E-democracy can be said to be the use of

electronic means to promote and increase citizen involvement and participation in government activities, programs, and decision-making (Norris & Reddick 2013; Oni et al. 2016; Päivärinta dan Sæbø, 2006). These communication channels with the potential to support citizen participation are available in developed countries and most developing and

least developed countries. These channels include chat technology, discussion forums, electronic voting systems, group decision support systems, and blogs (Nchise, 2012). Citizens and governments alike can conduct online deliberations to shape political policies and decisions (Moss & Coleman, 2014). therefore, collaboration and creating a democratic environment is a significant concern (Kreiss, 2015).

The development of e-democracy is undeniably the development of e-government that promotes e-democracy (Kardan dan Sadeghiani, 2011). The success of e-government can be directly related to the success of e-democracy (Abu-shanab, 2015). However, e-democracy projects tend to reduce costs and increase the efficiency of existing political processes or analyze civic participation outside of a specially built e-democracy platform (Bastick, 2017). Besides, citizens' potential for online participation failure may occur in e-democracy (Toots 2019). Citizen acceptance of online political participation can be integrated to understand better citizen acceptance of e-democracy (Kollmann, Kayser, & Stöckmann, 2012). On the other hand, an organizational culture that rejects bottom-up political participation and limited consultation from local stakeholders in crafting top-down democratic innovations is a predictor of arbitrary adoption of e-Democracy and self-serving institutional behavior. Actor. In turn, this attitude results in low public awareness of the e-petition system's existence, low responsiveness, and frustration of petitioners (Zadra, 2020). The e-democracy index can be used to record and evaluate the possibility of improving the democratic process through digitization. This is because the added value of the e-democracy index is that, firstly, it provides a basis for assessing democratic processes that are enhanced online (something that was previously lacking) and, second, it allows for a more in-depth perspective on digital processes in democracy (Kneuer, 2016).

This study presents the trend of *E-Democracy on Government* globalizing bibliometry. Bibliometry or scientometric analysis can be defined as a research area that helps analyze current trends in the literature regarding a particular area and provides guidance and motivation for future research work (Muhuri, Shukla, & Abraham, 2019). Bibliometric analysis can be used to look for patterns, trends, and niche areas in a field, subject area, and research

focus (Alcaide–Muñoz et al., 2017). The use of software in bibliometry can also help in sorting, storing, annotating, and presenting research results (Perianes-Rodriguez, Waltman, & van Eck, 2016)

Method

The research method uses qualitative research with a *literature review* (Moleong, 2012). A literature review is carried out to determine various distances or some findings that have not been found in previous discoveries to become a comparison material in conducting current research. The literature review in this study is to determine the development of the study of *E-Democracy on Government*. This research was conducted to achieve two analyzes. The first was to explore information about the dynamics of research *E-Democracy on Government*. Second, knowing where the *E-Democracy on Government* dominant research is conducted. A literature review is the right choice to achieve the objectives of this study. The data uses journal articles in the Scopus database. As one of the world's largest data centers, Scopus can index scientific literature to provide accurate information about the metadata of each scientific article individually, including publication data, abstracts, references, and others (Fauzy, 2016). The data was selected by selecting the type of document in journal articles, the most cited articles, and data collection from 2010 to 2020. Data analysis used the Vosviewer application to display a bibliometric map of the study of *E-Democracy on Government* (van Eck & Waltman, 2010). Also, researchers use the feature *Auto Code* in the Nvivo 12 plus software to describe the categorization, relationships, and mapping of research development themes on *E-Democracy on Government*. Furthermore, researchers also show the most dominant words/topics (Edwards-Jones, 2014).

Research Finding

Research Developments in *E-Democracy on Government*

The results of the analysis of 120 journal articles yielded diverse and varied data. The theme of research results on *E-Democracy on Government* produced in the last ten years from 2010 to 2020 varies widely from various angles. This study analyzes and classifies data based on annual documents, document citations, authors, campus affiliations, journal sources, document

types, subject areas, and countries that have dominated research in the last ten years.

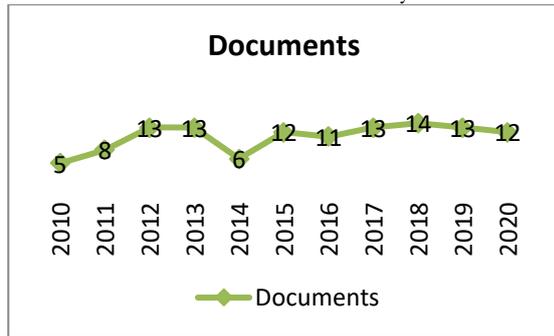


Figure.1 Document by year
Source: Scopus Data Analysis

The development of journal articles in the last ten years has fluctuated in the number of documents per year. There was an increase in the number of documents from 2010 to 2012, with five documents to 13 documents. Then it decreased from 2013 to 2014 with 13 documents to 6 documents. However, it increased again in 2015 with 12 documents, and the peak of the highest increase was in 2018 with 14 documents. This condition shows that the study of e-democracy is very dynamic every year. This also happened to document citations in the last ten years. There are ten documents with high citation. The document details are as follows.

Table 1. Document by cited

No	Title	Year	Cited
1	Open government and e-government: Democratic challenges from a public value perspective	2012	160
2	Testing the Development and Diffusion of E-Government and E-Democracy: A Global Perspective	2011	113
3	Understanding the rise of e-participation in non-democracies: Domestic and international factors	2012	78
4	Social media adoption at the American grassroots: Web 2.0 or 1.5?	2013	72
5	Towards cyberactivism 2.0? Understanding the use of social media and other information technologies for political activism and social movements	2014	64
6	Explaining the failure of an online citizen engagement	2011	51

	initiative: The role of internal institutional variables		
7	Transparency, E-government, and accountability: Some issues and considerations	2013	50
8	Deliberative maneuvers in the digital darkness: E-Democracy policy in the UK	2014	33
9	Assessing (e-)Democratic Innovations: "Democratic Goods" and Downing Street E-Petitions	2012	33
10	An empirical study of user acceptance of online political participation: Integrating Civic Voluntarism Model and Theory of Reasoned Action	2017	28

From table 1, it can be seen that the journal documents with high citation were published in 2012 with 160 citations. Then came second with 113 citations published in 2013 and 2012, with 78 citations ranking third. This shows that the last ten years of documents with many citations were from 2011 to 2014. Meanwhile, many researchers have studied the development of e-democracy, but there are only ten authors with the highest number of documents in Scopus. The authors are as follows.

Tabel 2. Authors by Document

No	Authors	Documents
1	Kassen, M	3
2	Norris, D.F	3
3	Alathur, S	2
4	Ayo, C.K	2
5	Bannister, F	2
6	Coleman, S	2
7	Connolly, R	2
8	Garcia-Sanchez, I.M	2
9	Gupta, M.P	2
10	Kayser,	2

Max Kassen and Donald F. Noris became the most authors with three more documents than other authors who studied the theme of e-democracy. Meanwhile, other authors only have two documents. Apart from producing works on e-democracy studies, this author is also affiliated with universities. Ten universities are the author's affiliations. There are only three universities with the most documents, namely The University of Texas at San Antonio, Utrecht University, and the University of Leed. The

details of affiliations can be seen in the following figure.

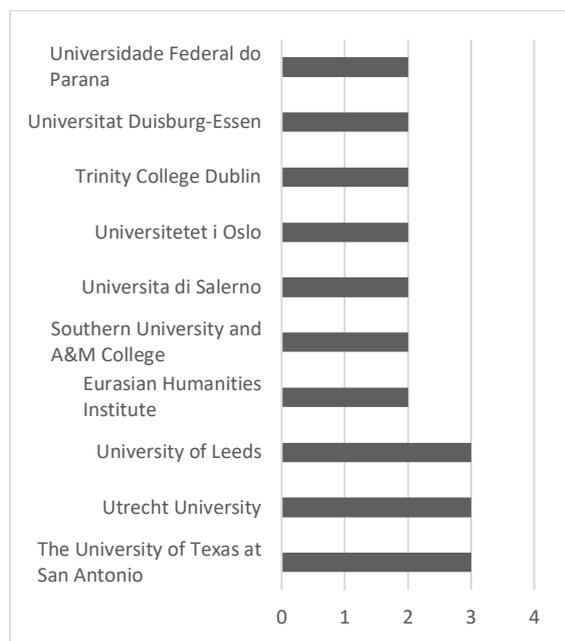


Figure 2. Document by Affiliation
 Source: Scopus data Analysis

Figure 2 shows that The University of Texas at San Antonio occupies the top three university affiliation positions at San Antonio, Utrecht University, and the University of Leed with three documents. Other universities such as Eurasian Humanities Institute, Southern University and A&M College, Universita di Salerno, Universitetet I Oslo, Trinity College Dublin, Universitat Duisburg-Essen, and Universidade Federal do Parana are in the fourth to tenth place by having two documents. Meanwhile, judging from the journal publishing sources, ten journals have the most e-democracy research documents.

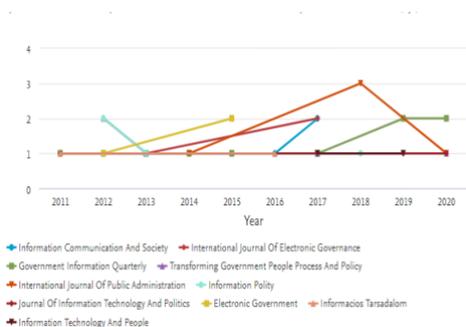


Figure 3. Document by Source
 Source: Scopus data Analysis

The Government Information Quarterly Journal is a source of productive journals every year. There are ten documents produced from 2011 to 2020. Then, Information Communication and Society with seven documents and six documents from the Transforming Government People Process and Policy. The details can be seen in the following table.

Table. 3 Journal and Total Document

No	Journals	Document
1	Government Information Quarterly	10
2	Information Communication and Society	7
3	Transforming Government People Process and Policy	6
4	International Journal of Electronic Governance	5
5	International Journal of Public Administration	5
6	Information Polity	4
7	Journal of Information Technology and Politics	4
8	Electronic Government	3
9	Informacios Tarsadalom	2
10	Information Technology and People	2

Journal of Government Information Quarterly ranks first with ten documents. Followed, the journal Information Communication and Society ranks second with seven documents. Meanwhile, in third place is the journal Transforming Government, People Process and Policy. Meanwhile, the International Journal of Electronic Governance and the International Journal of Public Administration rank fourth and fifth. Not only journal sources but document data are also categorized by document type. There are two types, namely articles and reviews. The percentage of document types can be seen in the following figure:

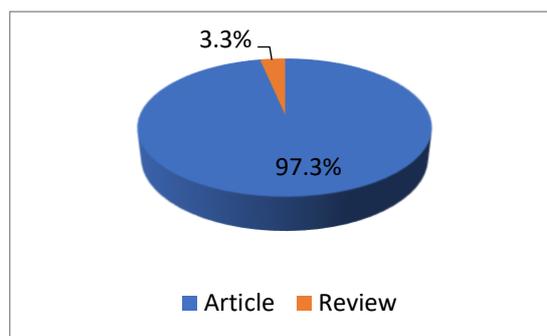


Figure 4. Document by Type
Source: Scopus data Analysis

Of the 120 documents discussing the theme of e-democracy in the last ten years, documents with article types were 96.7% or 116 documents. Meanwhile, the document review type was only 3.3% or four documents. Documents with article types have dominated in the last ten years. This certainly provides broad knowledge related to e-democracy studies. Apart from document type, published journals can be grouped based on their subject area.

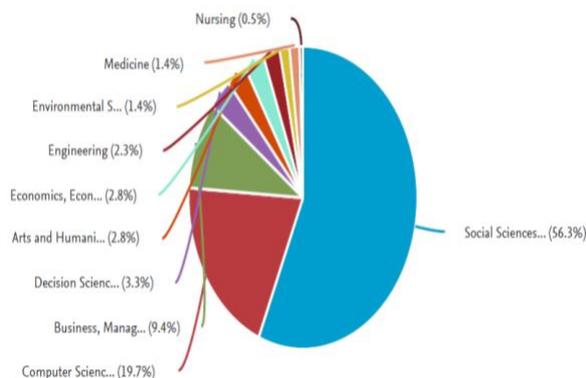


Figure 5. Document by subject Area
Source: Scopus data Analysis

Data based on documents by subject in published journals shows that social sciences' subject area has the largest percentage with 56.3%. Meanwhile, computer science with 19.7%, and business, management with 9.4% and various other fields. This data shows that social science is very well developed and can provide complete knowledge.

Governments develop the theme of e-democracy in a country. Ten countries have a large number of research documents related to E-democracy. The United States ranks first, followed by the United Kingdom in second and Spain in third. The ten countries that have the most studies can be seen in the following figure

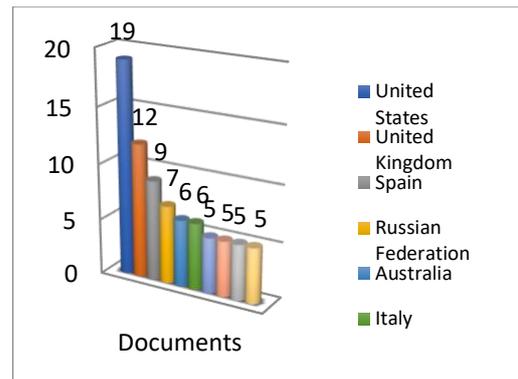


Figure 6. Document by Country
Source: Scopus data Analysis

The United States is the country with the most e-democracy study documents with 19 documents. Then, followed by United Kingdom with 12 documents and nine documents from Spain countries. Meanwhile, the Russian Federation ranks 4th with seven documents, and Australia ranks 5th with six documents. The dominance of the United States study on e-democracy can explain the maturity of infrastructure in its disposal and use. Therefore, it cannot be denied that the success of e-democracy is more prevalent in developed countries than in less developed countries (A. Nchise, Ngwa, & Mbarika, 2011).

Networking Between Topics Keywords "E-Democracy in Government"

Networking between topics on 120 documents that have been obtained from the Scopus database, bibliometric analysis is carried out by creating a visualization *network*, *overlays*, and *density* on Vosviewer. The bibliometric network consists of nodes and edges. *Nodes* represented by circles can be publications, journals, or keywords, while *edges* indicate a relationship between *nodes*. It indicates the relationship between two *nodes*. *The edge is* also the strength of the relationship represented by distance. The closer the distance between the *nodes* of the *nodes*, the more significant the correlation between *nodes* (Aribowo, 2019).

The topic of e-democracy cannot be separated from e-participation, which is part of e-democracy, which is used to empower and increase citizen engagement with information and communication technology. This allows for interaction in the bottom-up decision-making process and can develop social and political responsibility (Funilkul & Chutimaskul, 2009). It

is undeniable that e-government can be a way to develop e-democracy (Kardan & Sadeghiani 2011). Meanwhile, e-participation is an essential part of e-democracy (Toots 2019). The e-democracy keyword network's visualization can be seen from the VOS viewer analysis results, as shown below.

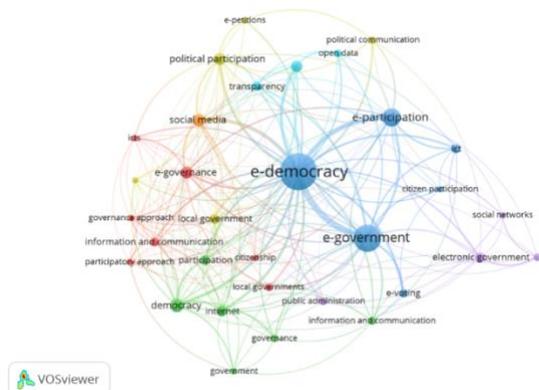


Figure 7. Interaction Topic of E-Democracy
 Source: VOS Viewer Analysis

Labels on images indicate keywords or terms that frequently occur, while colors indicate clusters. Image mapping is done to get a detailed picture of a bibliometric network, while clustering is used to gain insight or description about bibliometric grouping. (Aribowo, 2019). Each circle represents a keyword or term that occurs frequently. The circle size indicates the number of publications with a relationship with that term in the document title. The larger the circle size means the greater the number of documents relevant to that keyword or term.

Figure 7 above shows that a large node or keyword size is *e-democracy*. Besides, other keywords that have relevance to *e-democracy* are *e-government*, *e-participation*, *social media*, *e-governance*, etc. The difference in the color of the connecting lines in the image above shows the existence of a cluster relationship in the theme of e-democracy. Other keywords are divided into 7 clusters, where each keyword has a relationship in its visualization. The details of keyword and cluster items areas in the following table:

Table 5. Cluster Topic of E-democracy

Cluster 1	<i>Citizenship, E-governance, Governance, Approach, ICTs, Information and Communication, Local Government, Participatory Approach</i>
Cluster 2	<i>Democracy, Governance, Government,</i>

	<i>Information and Communication, Internet, Participation</i>
Cluster 3	<i>E-democracy, E-government, E-participation, E-Voting, ICT, Citizen Participation</i>
Cluster 4	<i>The E-Petition, Local Government, Political Communication, Political Participation, Representative Democracy</i>
Cluster 5	<i>Electronic Democracy, Electronic Government, Public Administration, Social Networks</i>
Cluster 6	<i>Open Data, Open Government, Transparency</i>
Cluster 7	<i>Social Media</i>

Keywords in cluster 3 have a large number of occurrences and total link strength. The word *e-democracy* has 84 occurrences, *e-government* with 46, and *e-participation* with 22. Besides, the keywords in cluster 3 also have a high total link strength. The details of the occurrence and total link strength keywords can be seen in the following table:

Table 6. Occurrence and Total Link Strength

Keyword	Occurrences	Total Link Strength
E-democracy	84	79.00
E-government	46	40.00
E-participation	22	21.00
Democracy	12	12.00
Social media	11	11.00
Political Participation	10	10.00
Open Government	9	9.00
E-Governance	10	9.00
Internet	8	8.00
Electronic Government	7	7.00
Local Government	7	7.00
Transparency	6	6.00
ICT	6	6.00
Participation	6	6.00
E-Voting	5	5.00
Information and Communication Technology	5	5.00
Electronic Democracy	4	4.00
Governance	4	4.00
Information and Communication Technologies	4	4.00
Open Data	4	4.00

The keyword e-democracy ranks first with occurrences of 84 and total link strength of 79. Followed in second, e-government with 46 and 40. Then, e-participation with 22 and 21 ranks third as well as other keywords. The extensive occurrence and total link strength can form a strong relationship between keywords in e-democracy.

In addition to network visualization, visualization can also be displayed *overlay*. The color of a node can indicate the year in which the article containing that keyword was published. The darker the color on the node, the longer the topic is discussed in the research, and vice versa, the brighter the color on the node, the more actual the topic is in research. The visualization *overlay* can be seen in the following figure.

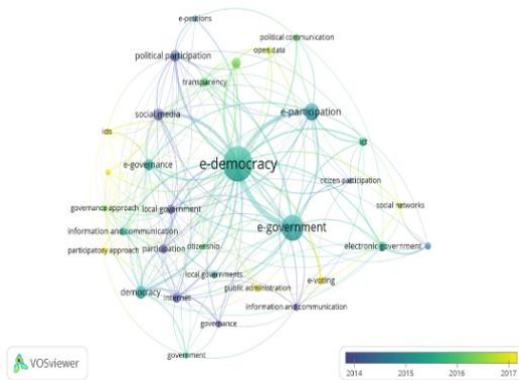


Figure 8. Visualisasi by overlay
 Source: VOS Viewer Analysis

The picture above explains that social media, local Government, participation, the internet, and other purplish-blue nodes were discussed from 2014 to 2015. Meanwhile, the topics of E-Voting, ICTs, and Open Data in yellow were discussed in 2014. 2017. On the other hand, *Vosviewer* also uses the primary colors red, green, blue (RGB) from each visualization it produces (Aribowo, 2019). This visualization, called *density*, is used to see the level of density or the amount of a studied topic. The more reddened a *node*, the more research has discussed a particular topic. Conversely, the greener a *node* is, the less research on that topic will be.



Figure 9. Visualisasi by density
 Source: VOS Viewer Analysis

From figure 9, the level of saturation indicated by the many keywords that often appear can be seen in the blue color surrounding the labels *e-democracy*, *e-government*, and *e-participation*. This area is a topic that has been widely researched. It is different from the topics covered in yellow, such as e-petition, political participation, political communication, and *open data*. This latter topic has not been researched much. This indicates that the opportunity to research the latter topic is still comprehensive.

Apart from using *Vosviewer*, the analysis of 120 documents also uses the Nvivo 12 Plus software. Based on the cluster analysis, it is found that there are five main clusters in "*E-democracy on Government*," namely public, Government, political, e-government, and technology. There is a strong relationship between "*E-democracy on Government*" with the public, Government, political, e-government, and technology topics. Although this relationship has a different Jaccard coefficient value, this study cannot be separated from the five topics. The clusters and the Jaccard coefficients can be seen in the following figure and table.



Figure 10. Category of theme
 Source: Nvivo 12 Plus

Table 10. Relationship Coefficient between Topics

Code A	Code B	Jaccard's coefficient
E-Democracy on Government	Public	0,881672
E-Democracy on Government	Government	0,846035
E-Democracy on Government	Political	0,774917
E-Democracy on Government	E-government	0,752617
E-Democracy on Government	Technology	0,560961

Furthermore, based on the results of the analysis using feature *Auto Code* with option *identify theme*, it was found that in general, the study of the theme of *E-democracy on Government* in 2010 to 2020 was related to the main topics in social science and political science studies, namely *Public*, *Government*, *Political*, *E-Government* and *Technology*. Furthermore, each of these themes is further divided into several explanatory indicators, as shown in the following figure.

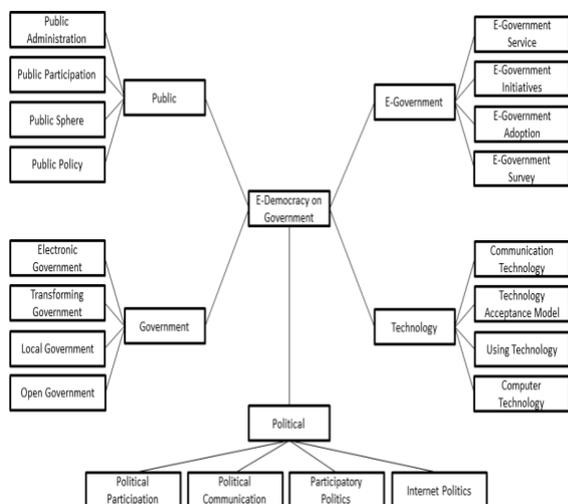


Figure 11. Mapping Themes in the development of research on E-Democracy on Government

The picture above explains that the development of research *e-democracy Government* has a broad, complex, and interrelated scope. There are four sub-topics from 5 topics related to *e-democracy on Government*: the sub-topics with the highest value in analyzing the feature *auto code* on the Nvivo 12 plus. Not only that, but the

analysis was also carried out with the *word cloud* to explore the words that appear most frequently in research *e-democracy*. The words/topics most dominant and strongly related in the document are democracy, Government, electronic, and participation. This means that this is the focus of research related to *e-democracy*, especially on big words. Other topics that are often discussed include information, development, citizens, public and participatory. Details can be seen in the following image.



Figure 12. Wordcloud topic of e-democracy on
 Source by Nvivo 12 Plus

The development of e-democracy seems to be influenced by internal factors in a country. Political norms and citizen pressure have a bearing on building e-democracy (Lee, Chang, & Berry, 2011). Government strategic leaders pay no attention to their neighbors or global best practices as they develop e-democracy. They react more to demands from internal users and value their political culture. Our work clearly shows that it is useful to understand these practices for separating e-government and e-democracy policies, and are likely to be more useful in the future as the practice of e-democracy develops and becomes more common in different countries.

Conclusion

Research on the theme of e-democracy in the last ten years has been very dynamic and developing. One hundred twenty journals study e-democracy from 2010 to 2020, with the United States' largest contributor. Government Information Quarterly is a popular journal with the most discussion on e-democracy. The

development of e-democracy in a country cannot be separated from the development of e-government with the help of information and communication technology. The success of e-government can be a way of implementing e-democracy. On the other hand, public participation in e-participation plays an essential role in e-democracy. Therefore, public acceptance and awareness can support the development of e-democracy.

Although this paper succeeds in explaining the map of the development of research on "E-Democracy on Government," this paper has limitations on the source of the data taken, namely the analyzed data is only taken in the database *Scopus* and has not used data sourced from the *Web of Science*. Thus, further research development needs to be studied more deeply using the *Web of Science* or its comparison with the data from the database *Scopus*, supported by the composition of the software *VO.Sviewer* and other NVivo 12 plus features not used in this study.

References

- Abu-shanab, Emad A. (2015). "E-democracy: The fruit of e-government E-democracy: the fruit of e-government." *International Journal Technology and Globalisation* 8(1).
- Alcaide-Muñoz, Laura, Manuel Pedro Rodríguez-Bolívar, Manuel Jesús Cobo, dan Enrique Herrera-Viedma. (2017). "Analysing the scientific evolution of e-Government using a science mapping approach." *Government Information Quarterly* 34(3): 545–55. <http://dx.doi.org/10.1016/j.giq.2017.05.002>.
- Aribowo, Eric Kunto. (2019). "Analisis Bibliometrik Berkala Ilmiah Names: Journal of Onomastics Dan Peluang Riset Onomastik Di Indonesia." *Aksara* 31(1): 85.
- Bastick, Zach. (2017). "Digital limits of government: The failure of e-democracy." *Public Administration and Information Technology* 25: 3–14.
- Edwards-Jones, Andrew. (2014). "Qualitative data analysis with NVIVO." *Journal of Education for Teaching* 40(2): 193–95. <https://www.tandfonline.com/doi/abs/10.1080/02607476.2013.866724> (November 6, 2020).
- Fauzy, Akhmad. (2016). *Pemetaan Keunggulan Riset Berbasis Publikasi Terindeks Scopus*. Yogyakarta.
- https://www.researchgate.net/publication/318914126_Pemetaan_Keunggulan_Riset_Berbasis_Publikasi_Terindeks_Scopus.
- Funilkul, Suree, dan Wichian Chutimaskul. (2009). "The framework for sustainable eDemocracy development." *Transforming Government: People, Process and Policy* 3(1): 16–31.
- Kardan, Ahmad A., dan Ayoob Sadeghiani. (2011). "Is e-government a way to e-democracy?. A longitudinal study of the Iranian situation." *Government Information Quarterly* 28(4): 466–73. <http://dx.doi.org/10.1016/j.giq.2010.12.007>.
- Kneuer, Marianne. (2016). "E-democracy: A new challenge for measuring democracy." *International Political Science Review* 37(5): 666–78.
- Kollmann, Tobias, Ina Kayser, dan Christoph Stöckmann. (2012). "Acceptance of electronic democracy: An empirically validated approach." *Electronic Government* 9(4): 370–87.
- Kreiss, Daniel. (2015). "The Problem of Citizens: E-Democracy for Actually Existing Democracy." *Social Media and Society* 1(2).
- Lee, Chung Pin, Kaiju Chang, dan Frances Stokes Berry. (2011). "Testing the Development and Diffusion of E-Government and E-Democracy: A Global Perspective." *Public Administration Review* 71(3): 444–54.
- Moleong, Lexy J. (2012). "Metodologi penelitian kualitatif (Cet. Ke-30)." *Bandung: Remaja Rosdakarya*.
- Moss, Giles, dan Stephen Coleman. (2014). "Deliberative manoeuvres in the digital darkness: E-Democracy policy in the UK." *British Journal of Politics and International Relations* 16(3): 410–27.
- Muhuri, Pranab K., Amit K. Shukla, dan Ajith Abraham. (2019). "Industry 4.0: A bibliometric analysis and detailed overview." *Engineering Applications of Artificial Intelligence* 78: 218–35. <https://www.sciencedirect.com/science/article/abs/pii/S0952197618302458> (November 24, 2020).
- Nchise, Abinwi C. (2012). "The trend of E-democracy research: Summary evidence and implications." *ACM International Conference Proceeding Series*: 165–72.
- Nchise, A., Ngwa, O., & Mbarika, V. (2011, May). Toward a Sustainable E-

- Participation Model in Sub Saharan Africa.
In Conference for E-Democracy and
Open Government: 171-179.
- Norris, Donald F., dan Christopher G. Reddick.
(2013). "E-democracy at the American
grassroots: Not now not likely." *Information
Polity* 18(3): 201–16.
- Oni, A. A., C. K. Ayo, S. Oni, dan V. W.
Mbarika. (2016). "Strategic framework for
e-democracy development and
sustainability." *Transforming Government:
People, Process and Policy* 10(3): 457–77.
- Päivärinta, Tero, dan Øystein Sæbø. (2006).
"Models of E-Democracy." *Communications
of the Association for Information Systems* 17(1).
- Perianes-Rodriguez, Antonio, Ludo Waltman,
dan Nees Jan van Eck. (2016).
"Constructing bibliometric networks: A
comparison between full and fractional
counting." *Journal of Informetrics* 10(4):
1178–95.
<http://dx.doi.org/10.1016/j.joi.2016.10.006>.
- Toots, Maarja. (2019). "Why E-participation
systems fail: The case of Estonia's
Osale.ee." *Government Information Quarterly*
36(3): 546–59.
<https://doi.org/10.1016/j.giq.2019.02.002>.
- van Eck, Nees Jan, dan Ludo Waltman. (2010).
"Software survey: VOSviewer, a computer
program for bibliometric mapping."
Scientometrics 84(2): 523–38.
- Zadra, Michele. (2020). "Do Central
Government e-Democracy Reforms Work
for Mid-Size Municipalities? A Case Study
of the Long-Term Effects of e-Petitioning
in Southampton." *14th ECPR General
Conference* (August): 1–20.