

P-ISSN: 2338-8617

E-ISSN: 2443-2067

Jurnal Ilmiah

PEURADEUN

Vol. 12, No. 1, January 2024



SCAD Independent
Accreditation by IAO since 2014

JIP

The Indonesian Journal of the Social Sciences
www.journal.scadindependent.org
DOI Prefix Number: 10.26811



Clarivate
Analytics
WEB OF SCIENCE™



sinta²
Science and Technology Index

Accredited "Sinta 2" by Decree No. 164/E/KPT/2021
Valid Until the January 2026 Edition



INDEX  COPERNICUS
INTERNATIONAL

**Mapping Publication Trend of E-Government Development Index
(Social Science Discipline Analysis)**

Mohamad Sukarno¹ & Dyah Mutiarin²

*^{1,2}Department of Government Affairs and Administration,
Universitas Muhammadiyah Yogyakarta, Indonesia*

Article in Jurnal Ilmiah Peuradeun

Available at : <https://journal.scadindependent.org/index.php/jipeuradeun/article/view/1018>
DOI : <https://doi.org/10.26811/peuradeun.v12i1.1018>

How to Cite this Article

APA : Sukarno, M., & Mutiarin, D. (2024). Mapping Publication Trend of E-Government Development Index (Social Science Discipline Analysis). *Jurnal Ilmiah Peuradeun*, 12(1), 403-428.
<https://doi.org/10.26811/peuradeun.v12i1.1018>

Others Visit : <https://journal.scadindependent.org/index.php/jipeuradeun>

Jurnal Ilmiah Peuradeun (JIP), *the Indonesian Journal of the Social Sciences*, is a leading peer-reviewed and open-access journal, which publishes scholarly works, and specializes in the Social Sciences that emphasize contemporary Asian issues with interdisciplinary and multidisciplinary approaches. JIP is published by SCAD Independent and published 3 times of year (January, May, and September) with p-ISSN: 2338-8617 and e-ISSN: 2443-2067. JIP has become a CrossRef member. Therefore, all articles published will have a unique DOI number. JIP has been accredited by the Ministry of Education, Culture, Research, and Technology, the Republic of Indonesia through the Decree of the Director-General of Higher Education, Research and Technology No. 164/E/KPT/2021, date December 27, 2021. This accreditation is valid until the January 2026 edition.

All articles published in this journal are protected by copyright, licensed under a Creative Commons 4.0 International License (CC-BY-SA) or an equivalent license as the optimal license for the publication, distribution, use, and reuse of scholarly works.

JIP indexed/included in Web of Science, Scopus, MAS, Index Copernicus International, Erih Plus, Sinta, Garuda, Moraref, Scilit, Sherpa/Romeo, Google Scholar, OAJI, PKP, Index, Crossref, BASE, ROAD, GIF, Advanced Science Index, JournalTOCs, ISI, SIS, ESJI, SSRN, ResearchGate, Mendeley and [others](#).



MAPPING PUBLICATION TREND OF E-GOVERNMENT DEVELOPMENT INDEX (Social Science Discipline Analysis)

Mohamad Sukarno¹ & Dyah Mutiarin²

^{1,2}Department of Government Affairs and Administration,
Universitas Muhammadiyah Yogyakarta, Indonesia

¹Correspondence Email: m.sukarno.psc22@mail.umy.ac.id

Received: April 14, 2023	Accepted: November 28, 2023	Published: January 30, 2024
Article Url: https://journal.scadindependent.org/index.php/jipeuradeun/article/view/1018		

Abstract

This study aims to determine the research development with the Theme E-Government Development Index (EGDI) from 2003-2023. The method used in this study is qualitative with literature study. This research data source uses the Scopus database to identify research themes related to the EGDI for the 2003-2023 period, with a total of 240 article documents indexed by Scopus. Data analysis in the study used VOSviewer and NVivo 12plus to analyze the data and classify the research theme. The results showed that 2011 became the highest year in published Scopus-indexed articles. China is the country that has the highest contribution to research publications. Aii, Janowski, Khawula, Khan, and Marthins were the main contributors to contributing publications. Then, the topics of electronic commerce, government data processing, government, e-government, and electronic health food became the highest frequency score for occurrences. The system is the most crucial topic in every research publication under the Theme of EGDI indexed by Scopus from 2003-2023. This research contributes theoretically to measuring e-government development in a country and practical in public service ICT innovation.

Keywords: Publication; EGDI; Scopus; E-Government; Development.



A. Introduction

Electronic Government (E.G.) has historically been projected as a role model of the government for service creation and innovation (Ahmadi et al., 2022; Turner et al., 2022). Then, E-Government can also be distributed as a model of “electronic online service rendering state service to the public and business” (Alisherovna Usmanova, 2021). In E.G., the platform used is “Information and Communication Technology (ICT)” to support delivery services (João Martins & Veiga, 2022; Osman & Zablith, 2021; Ismail et al., 2022; Bastidas et al., 2023). Therefore, this e-service is necessary for accelerating information access, service quality, transparency, and public participation (Hidayat et al., 2023; Nguyen & Tran, 2022).

To measure the development of E.G., the Department of Economic and Social Affairs of the United Nations (U.N.) uses the E-Government Development Index (EGDI) survey to see the development of a country's e-government (Tejedo-Romero et al., 2022; Paul, 2022; Onyoin & Bovis, 2021). The pace of e-government development was then adopted by all countries in the world as a solution for e-government (Ziolo et al., 2022). The report focuses on the development of each country or the availability of electronic service receipts (Gupta et al., 2020; Niftiyev, 2022).

The U.N.'s EGDI survey on the direction of e-government development has shown a positive trend globally (Baothman et al., 2021). It is related to transformational changes in the public sector concerning the digitalization of services (Noerlina et al., 2018). Then, the parameters regarding the e-government model are also proposed, namely “G2G, G2C, and G2B” (Abdulrazaq & Ishola, 2016; Uwizeyimana, 2022). The transition of ICT development in the e-government development model is then used to transform digitalization in the government sector (Stratu-Strelet et al., 2023).

The results of the EGDI survey conducted every two years give preference to both developing and developed countries to be able to assess the success and mistakes made (Singh et al., 2020). It is an evaluation material for relevant countries with low EGDI scores and other records (Patriani et al., 2022; Sukarno & Nurmandi, 2023). Public sectors subject to evaluation, such

as portal sites regarding the national web, health, social, education, and others, include digitizing public services (Stofkova et al., 2022).

EGDI has three dimensions in it, namely “Online Service Index (OSI), Telecommunication Infrastructure Index (TII), and Human Capital Index (HCI)” (Munyoka, 2020; Qwaider & Qwaider, 2021; Kurdi et al., 2016; Almehmadi, 2020).

1. Online Service Indeks

Online service can be interpreted as the concept of service in a digital model (Rita et al., 2019; Demir et al., 2020; Al-adwan, 2019). By implementing online in the government sector, communication and information transactions can be reached, and it is easier for the public to utilize it (Faulkner et al., 2018); (Santa et al., 2019). ICT tools are the leading guide in implementing online services in all public services (Demir et al., 2020; Tropea & Rango, 2020). Government online-based ICT services presented and adopted by many countries, including public sector organizations: G2G, G2B, and G2C (Kässi & Lehdonvirta, 2018; T. Chen et al., 2020; Olsson & Viscovi, 2019).

2. Telecommunication Infrastructure Index

The foundation of e-government will be achieved efficiently and effectively if telecommunication infrastructure is developed (Azolibe & Okonkwo, 2020); (Elbahnasawy, 2021). Telecommunication infrastructure is a sector contributor that can reform digital technology-based services (David, 2019). Then, the telecommunication infrastructure sector becomes the primary role model related to a country’s financial and economic growth because of its relationship with infrastructure development (Junior Abeka et al., 2021).

3. Human Capital Index

Human capital is defined as human capital that engages and measures e-government development (Mousavi & Clark, 2021). Human capital’s contribution to e-government development is optimizing industrial policy or policymakers (Hsu & Chen, 2019). The impact of human capital is a leading creator and innovator of government development in



each sector (You et al., 2021). Thus, it will become a public service product of the performance carried out by the government apparatus.

These three dimensions then become the concern of the readiness of e-government development seen from its ICT statistics (Dias, 2020). Then, the main impact is the Gross Domestic Product (GDP) as it correlates with a country's development plan and e-government strategy (Ullah et al., 2021; Kiyoshi, 2019). Most studies on the concept of EGDI only discuss the study of governance (TII, OSI, and HCI). Therefore, this study will open a new space (bibliometric) by looking at how the trend analysis of each publication takes place from the frequency of the EGDI concept used, namely 2003-present. Furthermore, this research will also see how studies have been carried out and how to see gaps for further research.

Therefore, concerning the purpose of the study, several questions arise later: How is the development of one of the country's e-governments in terms of EGDI? One method that can then measure it is bibliometric analysis (Moral-muñoz et al., 2020; Khanra et al., 2021). Bibliometrics are used to map research classified in a research theme and visualization in the form of the development of publications from EGDI, authors who have high contributions in research, journals that have the highest contribution, countries that are the highest research objects, and keywords and research topics that are often studied by researchers (Zahra et al., 2021).

B. Method

This research uses qualitative methods using literature studies. This literature study collects data in writing in documents, scientific articles, papers, notes, books, and others. This study uses a bibliometric methodology to conduct a meta-analysis of publication trends. Bibliometric analysis is the acquisition of bibliographical data that utilizes the Scopus database, which has comprehensive research data (Musa et al., 2022). The source of this research data is primary data (Scopus search engine) and secondary data consisting of articles, books, and documents that have theme relevance related to the EGDI concept. The Scopus search engine was used in this study

between 2003 and 2023 to identify the topic of the EGDI. Scopus is an indexing journal of the most extensive databases that provide a variety of journal articles from all disciplines and academic literature (Ghani et al., 2022). Elsevier B.V. Company is a Scopus-developed platform that provides research literature of more than 22,000 total articles and highly impacts international reputation publications (El-Baz & Iddik, 2022).

In finding publications related to the EGDI, the author uses keywords in the Scopus database: "TITLE-ABS-KEY (electronic AND government AND development AND index) AND PUBYEAR > 2003 AND PUBYEAR < 2024 AND PUBYEAR > 2003 AND PUBYEAR < 2024". The keyword results produced 240 documents, obtained using features on the Scopus search engine, VOSviewer, and NVivo 12plus in data visualization. Data analysis is then classified in each document based on the field of research subject, the development of publication trends each year, and the source of the research document.

The following phases in the processing and process of data analysis of the Scopus database.

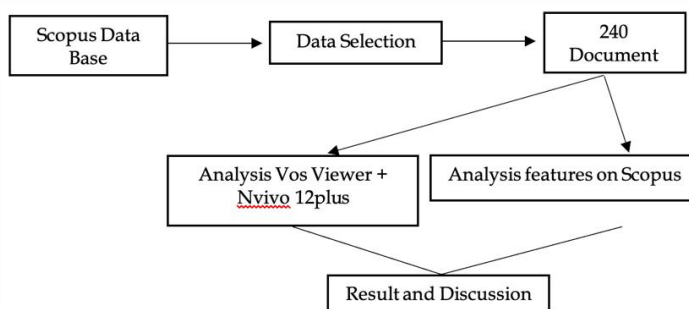


Figure 1. Analysis process

Mapping trend publications on the EGDI concept have the primary source of the Scopus database. Next is the data selection process relevant to the research topic and producing 240 documents. Furthermore, the data analysis process uses VOSviewer to draw a map or mapping of each publication trend. VOSviewer itself will display the results of sizeable bibliometric mapping and straightforward interpretation. In addition, NVivo 12plus is also used as a data automation tool that categorizes significant themes and narratives on



EGDI research topics. The visualization on NVivo 12plus includes theme classification, word cloud analysis, and the highest EGDI research topic. Therefore, this study will answer how to map the development of publication trends with the topic of EGDI research in 2003-2023.

C. Result and Discussion

1. Author Contribution

Several authors contributed to the research topic of the EGDI. In general, in articles in the Scopus index, most authors contribute as many as two documents. Aii, Janowski (Marcovecchio et al., 2019), Khan, Marthins (Kawula & Weible, 2013) (J Martins & Nielsen, 2020), and several other authors with two documents. Here is the Figure 2.

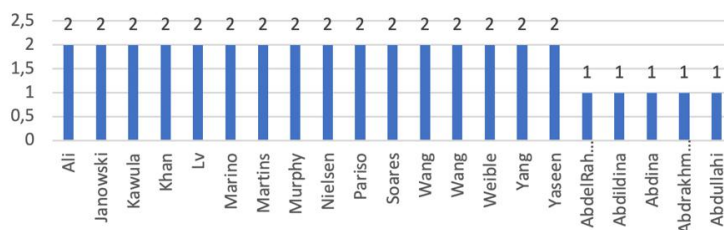


Figure 2. Author contribution
Source. Scopus Database.

The authors' contributions are Lv, Mariano, Murphy, Nielson, Pariso, Soares, Wang, Weible, Yang, and Yaseen, with each contributing two articles. Then there are also contributions by the following authors, namely Abdelrahman, Abdildina, Abdrakhim, and Abdullahi (Wiysonge et al., 2016; Plaksin et al., 2017). From the distribution of the number of scientific articles published by the author, the conclusion is that research topics regarding EGDI are still minimal to be studied and need to fill the gap among researchers and academics.

2. Publication Per Year

The annual publication of scientific articles indexed by Scopus experiences the dynamics yearly, with the number of articles being as many

as 240 Scopus documents. At the beginning of 2003-2007, it stagnated with three scientific documents indexed by Scopus. The theme discussed was the public sector in e-commerce (Reddick, 2004), the environment (Ashburn et al., 2004), and the catalog on governance (Kawula & Weible, 2006). It increased significantly in 2008-2011, peaking at 34 Scopus documents. Scopus scientific articles in 2011 generally have topics of discussion on ICT to support Government Serve, Sustainable development, and evaluation measuring government policies (Tenghong & Li, 2011; Peiqu, 2011; G.-F. Chen & Wang, 2011). Here is the Figure 3.

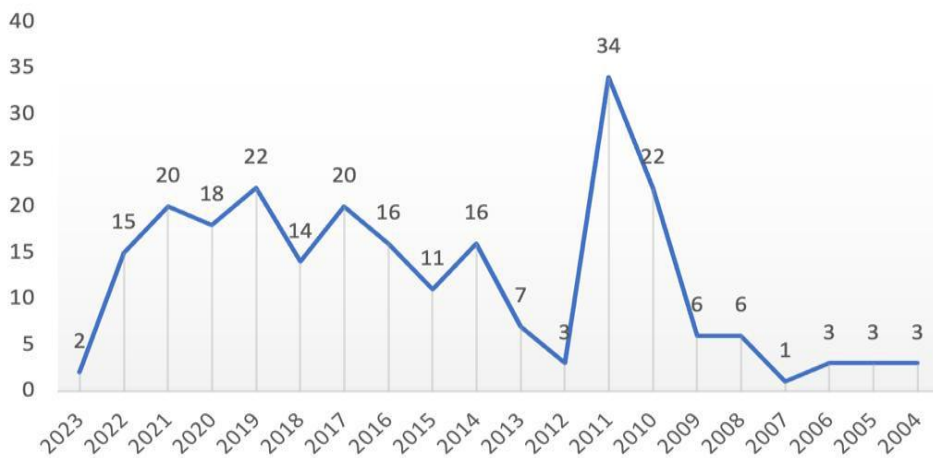


Figure 3. Annual publication by year
Source. Scopus Database.

Then, the intensity decreased quite drastically in 2011. The theme raised was the development of e-government and the evaluation and application of technology in the government space (Rorissa & Demissie, 2010). Furthermore, in the following years, the dynamics of publishing Scopus-indexed articles have increased and decreased in the intensity of publication of Scopus articles with the topic of EGDI until 2023.

3. Countries Contribution

Here is the data from countries that have contributed Scopus articles with the topic of discussion EGDI.

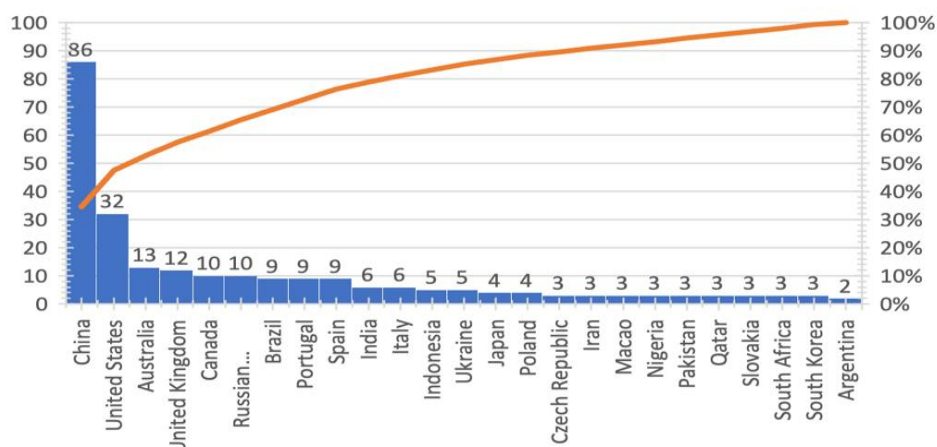


Figure 4. Country contribution
Source. Scopus Database

China became the country with the most contributions to Scopus articles, with 86 documents. The contributing countries contributed various perspective studies from EGDI. China is widely studied for its advances in ICT digitization of public services. It was followed by the United States (U.S.) with the contribution of 32 Scopus article documents to the EGDI. The U.S. is widely studied because it is a role model for other countries worldwide. The concept of EGDI in the U.S. explains much about studying e-government development in various public sectors. Australia followed it with 13 Scopus articles, and the United Kingdom had 12 Scopus-indexed articles. Canada and Russia, with 10 Scopus articles, were followed by Brazil, Portugal, and Spain, with nine scientific articles indexed by Scopus and followed by several other countries.

4. Publication Source Analysis

In Figure 5, the author presents journal publishers with the frequency of Scopus articles they published discussing the theme of the EGDI from 2003-2023.

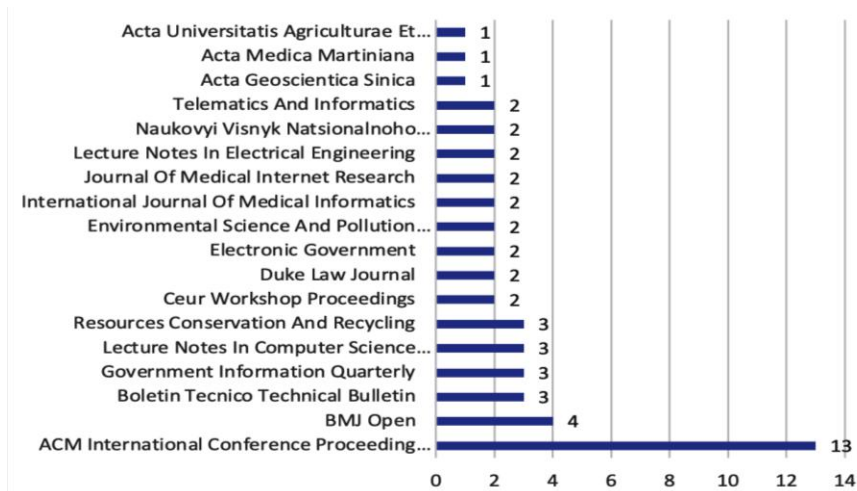


Figure 5. Journal contribution

Source: Scopus Database.

ACM International Conference Proceeding became the main contributor as a publisher of Scopus-indexed articles, contributing 13 documents. It became a publicist and a publication forum because it accumulated many articles on EGDI. Some of the discussions raised were applications in e-government, e-gov strategy plans, digital transformation, and ICT development. BMJ Open Journal followed with research publications in as many as four documents indexed by Scopus. Boletin Tecnio Technical Bulletin, Government Information Quarterly, Lecture Notes in Computer Science, and Resources Conservation and Recycling, each journal publisher publishing Scopus-indexed articles with three documents. In addition, it was followed by other publishers with contributions to Scopus articles that were at the number below the number already mentioned.

5. Mapping Network Visualization VOSviewer Scopus Database

In this study, the author used minimum keywords in all occurrences in the research topic of the EGDI. Here is the figure of VOSviewer analysis results that produce 8 clusters.

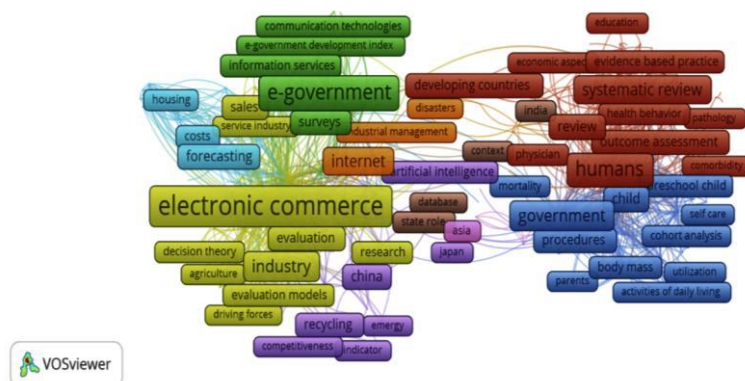


Figure 6. Mapping networking visualization
Source: VOSviewer.

Clustering is used to classify each theme and network from the bibliometric network (Subekti et al., 2022). Mapping networking, according to Figure 6 above, provides the frequency value of each keyword that appears. Each theme is associated with a line that represents two keywords in one article word. So that this clustering will map to obtain a comprehensive network from each cluster, the VOSviewer results above produce 8 clusters with different color distributions in each cluster. The first cluster (yellow): Electronic commerce, evaluation, industry, decision theory, driving forces, agriculture, evaluation models, and service industry. The second cluster (red): humans, government, systematic review, developing country, outcome assessment, health behavior, evidence-based practice, education, and economic aspects. The third cluster (blue): government, body mass, procedures, self-care, activities of daily living, mortality, and utilization. The fourth cluster (green) consists of e-government, surveys, information services, EGDI, and communication technologies. Fifth cluster (purple): China, Artificial Intelligence, Japan, and competitiveness. Sixth cluster (light blue): forecasting, cost, and housing. The seventh cluster (orange): internet, industrial management, and disasters. Eighth cluster (chocolate): India, database, and state role.

Keywords in the fourth and first clusters have the most occurrences and total link strength. In the analysis results, VOSviewer produced

electronic commerce keywords with an incident number of 76 – governmental data processing with a total of 65 incidents. Table 1 shows keywords with the highest impact total occurrences and total link strength.

Table 1. Occurrence and total link strength

Keywords	Occurrences	Total link strength
Electronic commerce	76	549
Governmental data processing	65	480
Government	20	330
Systematic review	15	251
e-government	42	240
Electronic health food	11	202

Source: VOSviewer

Keyword government has 20 incidents; systematic review has 15 incidents; e-government has 42 incidents; and electronic health food has 11 incidents. Electronic commerce keywords have the highest number of total links, with 549. Then, governmental data processing with 480 total link strength, and government with a total link strength of 330. Therefore, from the total number of occurrences and link strength values above, publications with the theme EGDI indexed with Scopus database for 2003-2023 are widely developed from electronic commerce government and government data processing.

6. Categorization of the Topic by Theme

To analyze the theme categories in 240 scientific articles of the EGDI from 2003-2023 indexed by Scopus. The author uses Computer Assigned Data Software (CAQDS) through NVivo 12 plus software to classify research themes (Sukarno, Mohamad, 2022). The auto code feature is then used as a theme categorization platform on the NVivo 12plus. In Figure 7, there are five classifications of themes in the process of 240 documents indexed by Scopus.



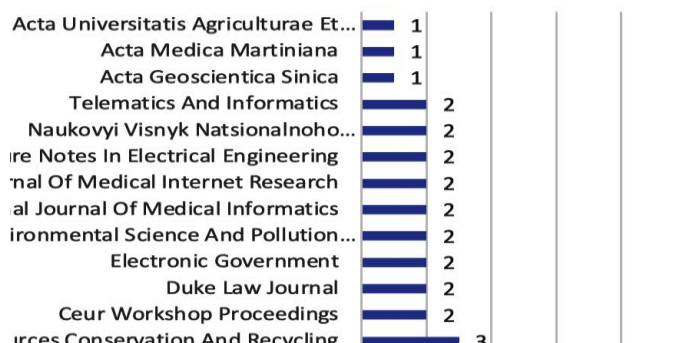


Figure 7. Categorization of the topic by theme
Source. NVivo 12plus.

In Figure 7 above, it is stated that the system theme is the main topic in research publications, with the Theme EGDI indexed by Scopus from 2003-2023. It can be seen from the proportion of increasingly influential colors, followed by other topics such as development, government, models, and health.

ICT has supported the E-Government Development to accelerate its development. Therefore, an ICT system or media is created in every E-Government Development through an Electronic Based Government System (EBGS) (Saputra et al., 2020). The existence of a system in e-government has implications for the integration of systems such as organizations in government, resources, ICT, and sustainable development (Luhan et al., 2017; Xiaoyi et al., 2011; Datulinggi et al., 2019; Tenghong & Li, 2011). Apart from being a means of integration and ICT, making and using a system in E-Government Development is also a means of monitoring and evaluating the implementation of a policy program (Shen & Wang, 2022; Walters et al., 2016; Park et al., 2020).

Then, the development side becomes one of the concepts in realizing e-government (Ibrahim H. Osman & Zabli, 2021). Development in E-Government governance is supported by the development index and access to services and convenience for the public (R Gupta et al., 2017). Infrastructure factors (telecommunications and internet networks) and Human Resources are decisive in developing E-Government (David, 2019; Vejačka & Bucko, 2015). In addition, model development is also widely applied as a step in

public readiness (Baradaran et al., 2018), the Balanced Scorecard model as evaluation material (Jiangyan & Tao, 2011), and the ICT-based Digitalization model (Ismagilova et al., 2017).

One of the massive sectors using the development model in E-Government is health services (Walters et al., 2016), such as the development of the “Health Sector Website Assessment Index” (HSWAI) (Sarantis et al., 2022), smart health technology (Kim & Chung, 2017; Sarantis et al., 2022), and health care (Kim & Chung, 2017; I H Osman & Zablith, 2021; Lucendo-Monedero et al., 2019; Li et al., 2020). The development aims as a strategy for carrying out E-Governance, the availability of health infrastructure and standardization, and human resources of health workers (Gurung et al., 2019).

Furthermore, in presenting the narrative research publication with the Theme EGDI from 2003-2023, the author uses word frequency through NVivo 12plus. This narrative contains diction (words) often discussed in EGDI research topics in articles indexed by Scopus. Government and development are the two main keywords because the concept of EGDI is an aspect of development in governance as the primary indicator of it. They are then followed by information and electronic diction. These two dictions are also aspects of infrastructure in government development, namely ICT. Here are the results of the narrative themes in the Figure 8.



Figure 8. Narrative of theme

Source. NVivo 12plus.

Table 2. Word Frequency

Word	Length	Count
Government	10	6875
Development	11	5091
Health	6	4534
Information	11	4053
Electronic	10	3436
Data	4	3050
System	6	2817
Evaluation	10	2538
Process	7	2040
Management	10	1909
Public	6	1906
Digital	7	1849
Services	8	1739
Care	4	1729
Type	5	1642
Use	3	1620
Level	5	1584
Quality	7	1530
Technology	10	1521
Countries	9	1510
Economic	8	1489
Performance	11	1424
Service	7	1392

Source. Nvivo 12plus

Table 2 above presents the value of each word from 240 Scopus articles on the EGDI theme from 2003-2023. The author takes the top 25 words and has signed on EGDI. In Table 2, the word government is taking effect word with a value of 6875. Then, followed by development with a score of 5091, then the word health with a value of 4534, followed by other words such as information, electronic, index, data, system, evaluation, and process.

D. Conclusion

This study concluded that 2011 had the most publications of Scopus articles on EGDI for 2003-2023, with contributions of 34 documents. China contributed the most, with 86 Scopus articles from a total of 240 article

documents reviewed by the author. Then Aii, Janowksi, Khawula, Khan, and Marthins became author contributors, each contributing two articles indexed by Scopus per person. ACM International Proceedings is the journal media that contributes the most to publishing Scopus articles with the Theme EGDI.

Then, in the review results, VOSviewer has shown eight keyword-based research clusters. The topics of electronic commerce, government data processing, government, e-government, and electronic health food are part of the cluster used as a research theme. In categorizing research themes, the results of the NVivo 12plus analysis show the five most prominent research themes, namely the topics of system, development, government, model, and health. These five themes are part of the classification of the development of the EGDI 2003-2023 research theme indexed by Scopus. Then, in the results of the narrative, the themes of the keywords government, development, health, information, and electronic become narratives often adopted from each research topic of the EGDI.

This research contribution contributes academically to the study of EGDI in governance. Electronic and development aspects contribute to future research, especially in measuring every e-government development in a country. This research has shortcomings in data sources that only focus on Scopus databases. Therefore, it is essential for future research to use other research databases such as WoS, Google Scholar, and other journal database platforms to enrich academic treasures.

Acknowledgment

Thanks to Prof. Dr. Achmad Nurmandi for supporting this publication and to Jusuf Kalla School of Government for facilitating data analysis and research funding.

Bibliography

Abdulrazaq, A., & Ishola, A. (2016). E-government in Nigeria: Progress and Prospects. *Ilorin Journal of Administration and Development*, 2(1), 60.



- Abeka, M.J., Andoh, E., Gatsi, J.G., & Kawor, S. (2021). Financial Development and Economic Growth Nexus in SSA Economies: The Moderating Role of Telecommunication Development. *Cogent Economics and Finance*, 9(1), 1-24. <https://doi.org/10.1080/23322039.2020.1862395>.
- Ahmadi, A.R., Meyazaki, H., & Anwar, M. (2022). E-government Development Index (EGDI) Estimation and Suggestions for Improvement: A Case Study of Khost Province, Afghanistan. *International Journal of Applied Research*, 2. <https://www.allresearchjournal.com/archives/2020/vol6issue3/ParitG/6-2-100-327.pdf>.
- Al-adwan, A.S. (2019). Boosting Customer E-Loyalty : An Extended Scale of Online Service Quality. *Information*, 10(12), 1-27. <https://doi.org/10.3390/info10120380>.
- Almehmadi, F. (2020). Developing an Information Management Strategy for e-Government in Saudi Arabia. *International Journal of Advanced Computer Science and Applications*, 11(11), 643-653. <https://doi.org/10.14569/IJACSA.2020.0111179>.
- Ashburn, M.W., Lach, J., & Sulcoski, M. (2004). NETSS: A Networked Environment for Testing Suspicious Software. *IEEE Systems and Information Engineering Design Symposium*, 163-170. <https://doi.org/10.1109/sieds.2004.239877>.
- Azolibe, C.B., & Okonkwo, J.J. (2020). Infrastructure Development and Industrial sector Productivity in Sub-Saharan Africa. *Journal of Economics and Development*, 22(1), 91-109. <https://doi.org/10.1108/jed-11-2019-0062>.
- Baothman, F., Saeedi, K., Aljuhani, K., Alkatheri, S., Almeatani, M., & Alothman, N. (2021). Computational Intelligence Approach for Municipal Council Elections using Blockchain. *Intelligent Automation and Soft Computing*, 27(3), 625-639. <https://doi.org/10.32604/IASC.2021.014827>.
- Baradaran, V., Farokhi, S., & Ahamdi, Z. (2018). A Model for Evaluation and Development of Citizens' Electronic Readiness for Deployment of an E-City using Structural Equation Modeling. *Journal of Global Information Management*, 26(4), 135-157. <https://doi.org/10.4018/JGIM.2018100108>.
- Bastidas, V., Oti-sarpong, K., Nochta, T., Wan, L., Tang, J., & Schooling, J. (2023). Leadership for Responsible Digital Innovation in the Built Environment: A Socio-Technical Review for Re-Establishing Competencies. *Journal of Urban Management*, 12(January), 1-17. <https://doi.org/10.1016/j.jum.2023.01.004>.

- Chen, G.-F., & Wang, C.-C. (2011). On E-government Performance Evaluation - in the Perspectives of Innovation. *4th International Conference on Information Management, Innovation Management and Industrial Engineering, ICIII 2011*, 1, 172-175. <https://doi.org/10.1109/ICIII.2011.46>.
- Chen, T., Peng, L., Jing, B., Wu, C., & Yang, J. (2020). The Impact of the COVID-19 Pandemic on User Experience with Online Education Platforms in China. *Sustainability*, 12(18), 1-31. <https://doi.org/10.3390/su12187329>.
- Datulinggi, E., Suyuti, A., Ahmad, M., Syarif, S., Samrichard, & Syam, A. (2019). Antenatal Care Documentation Information System Integrated with Web-Based Government Employed Midwife Performance Index (Seindah lutra). *Indian Journal of Public Health Research and Development*, 10(10), 1388-1394. <https://doi.org/10.5958/0976-5506.2019.03030.4>.
- David, O. O. (2019). Nexus Between Telecommunication Infrastructures, Economic Growth and Development in Africa: Panel Vector Autoregression (P-VAR) analysis. *Telecommunications Policy*, 43(8), 1-17. <https://doi.org/10.1016/j.telpol.2019.03.005>.
- Demir, A., Maroof, L., Sabbah Khan, N. U., & Ali, B.J. (2020). The Role of E-Service Quality in Shaping Online Meeting Platforms: A Case Study from Higher Education Sector. *Journal of Applied Research in Higher Education*, 13(5), 1436-1463. <https://doi.org/10.1108/JARHE-08-2020-0253>.
- Dias, G.P. (2020). Global E-Government Development: Besides the Relative Wealth of Countries, do Policies Matter? *Transforming Government: People, Process and Policy*, 14(3), 381-400. <https://doi.org/10.1108/TG-12-2019-0125>.
- El Baz, J., & Iddik, S. (2022). Green Supply Chain Management and Organizational Culture: A Bibliometric Analysis Based on Scopus Data (2001-2020). *International Journal of Organizational Analysis*, 30(1), 156-179. <https://doi.org/10.1108/IJOA-07-2020-2307>.
- Elbahnasawy, N.G. (2021). Can E-Government Limit the Scope of the Informal Economy? *World Development*, 139, 105341. <https://doi.org/10.1016/j.worlddev.2020.105341>.
- Faulkner, N., Jorgensen, B., & Koufariotis, G. (2018). Can Behavioural Interventions Increase Citizens'citizens' use of E-Government? Evidence from a Quasi-Experimental Trial. *Government Information Quarterly*, 36(1), 61-68. <https://doi.org/10.1016/j.giq.2018.10.009>.



- Ghani, N.A., Teo, P. C., Ho, T.C.F., Choo, L.S., Kelana, B.W.Y., Adam, S., & Ramliy, M.K. (2022). Bibliometric Analysis of Global Research Trends on Higher Education Internationalization Using Scopus Database: Towards Sustainability of Higher Education Institutions. *Sustainability (Switzerland)*, 14(14), 1-15. <https://doi.org/10.3390/su14148810>.
- Gupta, R, Muttoo, S.K., & Pal, S.K. (2017). The Need of a Development Assessment Index for E-Governance in India. In D. R., J. T., & B. R. (Eds.), *10th International Conference on Theory and Practice of Electronic Governance, ICEGOV 2017: Vol. Part F1280* (pp. 414–422). Association for Computing Machinery. <https://doi.org/10.1145/3047273.3047294>.
- Gupta, R., Muttoo, S.K., & Pal, S.K. (2020). Regional E-governance Development Index for Developing Nations. *Digital Government: Research and Practice*, 1(3), 1-26. <https://doi.org/10.1145/3386163>.
- Gurung, M. S., Dorji, G., Khetrapal, S., Ra, S., Babu, G. R., & Krishnamurthy, R. S. (2019). Transforming Health Care Through Bhutan's Digital Health Strategy: Progress to Date. *WHO South-East Asia Journal of Public Health*, 8(2), 77–82. <https://doi.org/10.4103/2224-3151.264850>.
- Hidayat, I., Rehman, U., Turi, J.A., & Rosak-szyrocka, J. (2023). The Role of Awareness in Appraising the Success of E-government Systems. *Cogent Business & Management*, 10(1), 1-18. <https://doi.org/10.1080/23311975.2023.2186739>.
- Hsu, B. X., & Chen, Y. M. (2019). Industrial Policy, Social Capital, Human Capital, and Firm-Level Competitive Advantage. *International Entrepreneurship and Management Journal*, 15(3), 883–903. <https://doi.org/10.1007/s11365-019-00584-7>.
- Ismagilova, L. A., Gileva, T. A., Galimova, M. P., & Glukhov, V. V. (2017). Digital Business Model and Smart Economy Sectoral Development Trajectories Substantiation. In G. O., A. S., B. S., & K. Y. (Eds.), *17th International Conference on Next Generation Teletraffic and Wired/Wireless Advanced Networks and Systems, NEW2AN 2017, 10th Conference on Internet of Things and Smart Spaces, ruSMART 2017 and 3rd International Workshop on Nano-scale Computing and Com: Vol. 10531 LNCS* (pp. 13–28). Springer Verlag. https://doi.org/10.1007/978-3-319-67380-6_2.
- Ismail, E., Alariqi, A. A., Jawid, A., Wall, J., & Abdulrab, M. (2022). Strategy, Policy, and Legal Barriers to E-Gov Implementation in Afghanistan. *IEEE Access*, 10, 13800–13812. <https://doi.org/10.1109/ACCESS.2022.3144198>.

- Jiangyan, L., & Tao, Y. (2011). The Enterprise Strategy Performance Appraisal Model and Empirical Analysis on Community Responsibility. *2nd International Conference on E-Business and E-Government, ICEE 2011*, 1-14. <https://doi.org/10.1109/ICEBEG.2011.5882716>.
- Kässi, O., & Lehdonvirta, V. (2018). Technological Forecasting & Social Change Online Labour Index: Measuring the Online Gig Economy for Policy and Research. *Technological Forecasting & Social Change*, 137(December 2018), 241-248. <https://doi.org/10.1016/j.techfore.2018.07.056>.
- Kawula, J.D., & Weible, A. (2006). Catalogs, Indexes, and Full Text Databases: An Integrative Approach to Accessing Government Literature. *Reference Librarian*, 45(94), 191-206. https://doi.org/10.1300/J120v45n94_11.
- Khanra, S., Dhir, A., Kaur, P., & Mäntymäki, M. (2021). Bibliometric Analysis and Literature Review of Ecotourism: Toward Sustainable Development. *Tourism Management Perspectives*, 37(January 2021), 1-15. <https://doi.org/10.1016/j.tmp.2020.100777>.
- Kim, J.C., & Chung, K. (2017). Depression Index Service Using Knowledge Based Crowdsourcing in Smart Health. *Wireless Personal Communications*, 93(1), 255-268. <https://doi.org/10.1007/s11277-016-3923-3>.
- Kiyoshi, M. (2019). Global Comparison of the Factors Promoting E-Government. *Informatization Policy*, 26(4), 3-19. <https://doi.org/10.22693/NIAIP.2019.26.4.003>.
- Kurdi, R., Nyakwende, E., & Al-Jumeily, D. (2016). E-Government Implementation and Readiness: A Comparative Study between Saudi Arabia and Republic of Korea. *Proceedings - 2015 International Conference on Developments in ESystems Engineering, DeSE 2015*, 279-284. <https://doi.org/10.1109/DeSE.2015.30>.
- Li, K., Kim, D.J., Lang, K.R., Kauffman, R.J., & Naldi, M. (2020). How Should we Understand the Digital Economy in Asia? Critical Assessment and Research Agenda. *Electronic Commerce Research and Applications*, 44(November-December 2020), 1-16. <https://doi.org/10.1016/j.elerap.2020.101004>.
- Lucendo-Monedero, A. L., Ruiz-Rodríguez, F., & González-Relaño, R. (2019). Measuring the Digital Divide at Regional Level. A Spatial Analysis of the Inequalities in Digital Development of Households and Individuals in Europe. *Telematics and Informatics*, 41(August 2019), 197-217. <https://doi.org/10.1016/j.tele.2019.05.002>.



- Luhan, J., Novotna, V., & Olesovsky, V. (2017). The Dynamic Model of System Development in the Area of E-Government. In S. K.S. (Ed.), *30th International Business Information Management Association Conference - Vision 2020: Sustainable Economic development, Innovation Management, and Global Growth*, IBIMA 2017 (Vols. 2017-Janua, pp. 1157-1165). International Business Information Management Association, IBIMA. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85048657118&partnerID=40&md5=e3e8f2a1889b1b19ac3a3b12fb1d58a3>.
- Marcovecchio, I., Thinyane, M., Estevez, E., & Janowski, T. (2019). Digital Government as Implementation Means for Sustainable Development Goals. *International Journal of Public Administration in the Digital Age*, 6(3), 1-22. <https://doi.org/10.4018/IJPADA.2019070101>.
- Martins, J., & Nielsen, M. M. (2020). ICT Development in the Public Sector and the Small Island States Context - Evidence from across the World. In T. L., T. L., P. J., & P. E. (Eds.), *7th International Conference on eDemocracy and eGovernment, ICEDEG 2020* (pp. 67-73). Institute of Electrical and Electronics Engineers Inc. <https://doi.org/10.1109/ICEDEG48599.2020.9096711>.
- Martins, João, & Veiga, L.G. (2022). Digital Government as a Business Facilitator. *Information Economics and Policy*, 60, 1-11. <https://doi.org/10.1016/j.infoecopol.2022.100990>.
- Moral-muñoz, J. A., Herrera-viedma, E., Santisteban-espejo, A., Cobo, M. J., Herrera-viedma, E., Santisteban-espejo, A., & Cobo, M. J. (2020). Software Tools for Conducting Bibliometric Analysis in Science: An up-to-date review. *El Profesional de La Informa- Ción*, 29(1), 1-20. <https://doi.org/10.3145/epi.2020.ene.03>.
- Mousavi, A., & Clark, J. E. (2021). The Effects of Natural Resources on Human Capital Accumulation: A Literature Survey. *Journal of Economic Surveys*, 35(4), 1073-1117. <https://doi.org/10.1111/joes.12441>.
- Munyoka, W. (2020). Electronic Government Adoption in Voluntary Environments – a Case Study of Zimbabwe. *Information Development*, 36(3), 414-437. <https://doi.org/10.1177/0266666919864713>.
- Musa, H.H., Musa, T.H., Oderinde, O., Musa, I.H., Shonekan, O.O., Akintunde, T.Y., & Onasanya, A.K. (2022). Traditional Herbal Medicine: Overview of Research Indexed in the Scopus Database. *Advances in Traditional Medicine*, 23, 1173-1183. <https://doi.org/10.1007/s13596-022-00670-2>.

- Nguyen, H.N., & Tran, M.D. (2022). Stimuli To Adopt E-Government Services During Covid-19: Evidence From Vietnam. *Innovative Marketing*, 18(1), 12–22. [https://doi.org/10.21511/im.18\(1\).2022.02](https://doi.org/10.21511/im.18(1).2022.02).
- Niftiyev, I. (2022). The Role of Public Spending and The Quality of Public Services in E-government Development. *Materials II International Conference Digital Economy*.
[https://www.econstor.eu/handle/10419/256899%0Ahttps://www.econstor.eu/bitstream/10419/256899/1/Niftiyev Ibrahim E-gov.pdf](https://www.econstor.eu/handle/10419/256899%0Ahttps://www.econstor.eu/bitstream/10419/256899/1/Niftiyev%20Ibrahim%20E-gov.pdf).
- Noerlina, Kristin, D. M., Dewanti, R., Sasmoko, Mursitama, T. N., Muqsith, A. M., Fajrianti, S. P., Krishti, N. S., & Makalew, B. A. (2018). Systematic Literature Review on Corruption Prevention Efforts Towards Sustainable Economy in Indonesia: ICT perspective. *IOP Conference Series: Earth and Environmental Science*, 195(1), 1-10. <https://doi.org/10.1088/1755-1315/195/1/012051>.
- Olsson, T., & Viscovi, D. (2019). Resources and Repertoires: Elderly Online Practices. *European Journal of Communication*, 34(1), 38-56. <https://doi.org/10.1177/0267323118810852>.
- Onyoin, M., & Bovis, C. (2021). Policy and Institutional Enablers of Public-Private Partnerships in the Electricity Sector in Uganda: A Multi-Level and Path Dependence Perspective. *International Journal of Public Sector Management*, 34(1), 51–70. <https://doi.org/10.1108/IJPSM-01-2020-0026>.
- Osman, I.H., & Zabli, F. (2021). Re-evaluating Electronic Government Development Index To Monitor the Transformation Toward Achieving Sustainable Development Goals. *Journal of Business Research*, 131, 426–440. <https://doi.org/10.1016/j.jbusres.2020.10.027>.
- Park, J., Park, K. V, Yoo, S., Choi, S.O., & Han, S.W. (2020). Development of the WEEE Grouping System in South Korea using the Hierarchical and Non-Hierarchical Clustering Algorithms. *Resources, Conservation and Recycling*, 161. <https://doi.org/10.1016/j.resconrec.2020.104884>.
- Patriani, I., Salam, R., Luh, N., & Dewi, Y. (2022). Digitalization in Public Administration Services in Indonesia: Pseudo or Real Digitalization. *International Journal Of Artificial Intelligence Research*, 6(1). <https://doi.org/10.29099/ijair.v6i1.1.602>.
- Paul, S. (2022). Accessibility Analysis using WCAG 2.1: Evidence from Indian e-Government Websites. *Universal Access in the Information Society*, 0123456789. <https://doi.org/10.1007/s10209-021-00861-9>.



- Peiqu, M. (2011). Research on Driving Forces and Policy for Agricultural Sustainable Development - An Empirical Study on Grain Production of Henan Province. *2nd International Conference on E-Business and E-Government, ICEE 2011*, 4377–4380. <https://doi.org/10.1109/ICEBEG.2011.5882422>.
- Plaksin, S., Abdrakhmanova, G., & Kovaleva, G. (2017). Approaches to Defining and Measuring Russia's Internet Economy. *Foresight and STI Governance*, 11(1), 55–65. <https://doi.org/10.17323/2500-2597.2017.1.55.65>.
- Qwaider, W., & Qwaider, W.Q. (2021). Indicators of E-Government between Saudi Arabia and Bahrain: A Comparative Study. *International Journal of Applied Information Systems (IJ AIS)*, 12(36). www.ijais.org.
- Reddick, C. G. (2004). Public-Sector E-Commerce and State Financial Management: Capacity Versus Wealth. *Social Science Computer Review*, 22(3), 293–306. <https://doi.org/10.1177/0894439304263636>.
- Rita, P., Oliveira, T., & Farisa, A. (2019). The Impact of e-Service Quality and Customer Satisfaction on Customer Behavior in Online Shopping. *Heliyon*, 5(10), 1-14. <https://doi.org/10.1016/j.heliyon.2019.e02690>.
- Rorissa, A., & Demissie, D. (2010). An analysis of African e-Government Service Websites. *Government Information Quarterly*, 27(2), 161–169. <https://doi.org/10.1016/j.giq.2009.12.003>.
- Santa, R., MacDonald, J. B., & Ferrer, M. (2019). The Role of Trust in e-Government Effectiveness, Operational Effectiveness and User Satisfaction: Lessons from Saudi Arabia in e-G2B. *Government Information Quarterly*, 36(1), 39–50. <https://doi.org/10.1016/j.giq.2018.10.007>.
- Saputra, M. R. Y., Winarno, W. W., Henderi, & Shaddiq, S. (2020). Evaluation of Maturity Level of the Electronic Based Government System in the Department of Industry and Commerce of Banjar Regency. *Journal of Robotics and Control (JRC)*, 1(5), 156–161. <https://doi.org/10.18196/jrc.1532>.
- Sarantis, D., Soares, D., & Carvalho, J. (2022). Developing Health Sector Websites Assessment Instrument: Challenges and Pitfalls. *Evaluation and Program Planning*, 92. <https://doi.org/10.1016/j.evalprogplan.2022.102065>.
- Shen, Y., & Wang, D. (2022). Interdisciplinary Application of Theories and Methods of Behavioral Geography. *Progress in Geography*, 41(1), 40–52. <https://doi.org/10.18306/dlkxjz.2022.01.004>.

- Singh, H., Grover, P., Kar, A. K., & Ilavarasan, P. V. (2020). Review of Performance Assessment Frameworks of E-Government Projects. In *Transforming Government: People, Process and Policy*, 14 (1), 31-64. <https://doi.org/10.1108/TG-02-2019-0011>.
- Stofkova, J., Poliakova, A., Stofkova, K. R., Malega, P., Krejnos, M., Binasova, V., & Daneshjo, N. (2022). Digital Skills as a Significant Factor of Human Resources Development. *Sustainability (Switzerland)*, 14(20), 1-18. <https://doi.org/10.3390/su142013117>.
- Stratu-Strelet, D., Gil-Gómez, H., Oltra-Badenes, R., & Oltra-Gutierrez, J. V. (2023). Developing a Theory of full Democratic Consolidation: Exploring the Links between Democracy and Digital Transformation in Developing Eastern European Countries. *Journal of Business Research*, 157, 1-9. <https://doi.org/10.1016/j.jbusres.2022.113543>.
- Subekti, D., Nurmandi, A., & Mutiarin, D. (2022). Mapping Publication Trend of Political Parties Campaign in Social Media: A Bibliometric Analysis. *Journal of Political Marketing*, 0(0), 1-18. <https://doi.org/10.1080/15377857.2022.2104424>.
- Sukarno, Mohamad, U. (2022). *Public Engagement in Social Media Opinion : PPKM Policy Level 3 Christmas and New Year 2022*. Atlantis Press SARL. <https://doi.org/10.2991/978-2-494069-07-7>.
- Sukarno, M., & Nurmandi, A. (2023). E-Government Development Index Impact on World Governance Indicator Index in Southeast Asian Countries. *Journal of Contemporary Governance and Public Policy*, 4(1), 97-114. <https://doi.org/10.46507/jcgpp.v4i1.106>
- Tejedo-Romero, F., Araujo, J.F.F.E., Tejada, Á., & Ramírez, Y. (2022). E-Government Mechanisms To Enhance The Participation Of Citizens And Society: Exploratory Analysis Through The Dimension Of Municipalities. *Technology in Society*, 70(April), 1-14. <https://doi.org/10.1016/j.techsoc.2022.101978>.
- Tenghong, L., & Li, C. (2011). The Research for the Performance Evaluation Index System of Supply Chain Based on Internet of Things. *2011 International Conference on Management of E-Commerce and e-Government, ICMcCG 2011*, 176-180. <https://doi.org/10.1109/ICMcCG.2011.44>.
- Tropea, M., & Rango, F. De. (2020). COVID-19 in Italy : Current State , Impact and ICT-Based Solutions. *Journal IET Smart Cities*, 2(2), 74-81. <https://doi.org/10.1049/iet-smc.2020.0052>.



- Turner, M., Kim, J., & Kwon, S.H. (2022). The Political Economy of E-Government Innovation and Success in Korea. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 145. <https://doi.org/10.3390/joitmc8030145>.
- Ullah, A., Pinglu, C., Ullah, S., Abbas, H.S.M., & Khan, S. (2021). The Role of E-Governance in Combating COVID-19 and Promoting Sustainable Development: A Comparative Study of China and Pakistan. *Chinese Political Science Review*, 6(1), 86–118. <https://doi.org/10.1007/s41111-020-00167-w>.
- Usmanova, A.A. (2021). Whether a Higher E-Government Development Index Means a Higher GDP Growth Rate? *ACM International Conference Proceeding Series*, 16, 467–472. <https://doi.org/10.1145/3508072.3508168>.
- Uwizeyimana, D.E. (2022). Analysing the Importance of e-Government in Times of Disruption: The Case of Public Education in Rwanda During Covid-19 Lockdown. *Evaluation and Program Planning*, 91(February), 102064. <https://doi.org/10.1016/j.evalprogplan.2022.102064>.
- Vejačka, M., & Bucko, J. (2015). User Knowledge Development in the Field of Electronic Services and their Security in Slovakia. In S. V., B. Z., V. B., S. A., G. S., B. P., S. K., R. S., M. B., C.-S. M., & M. M. (Eds.), *38th International Convention on Information and Communication Technology, Electronics and Microelectronics, MIPRO 2015* (pp. 743–748). Institute of Electrical and Electronics Engineers Inc. <https://doi.org/10.1109/MIPRO.2015.7160370>.
- Walters, S.J., Stern, C., & Robertson-Malt, S. (2016). The Measurement of Collaboration within Healthcare Settings: A Systematic Review of Measurement Properties of Instruments. *JBIR Database of Systematic Reviews and Implementation Reports*, 14(4), 138–197. <https://doi.org/10.11124/JBISRIR-2016-2159>.
- Wiysonge, C.S., Abdullahi, L.H., Ndze, V.N., & Hussey, G.D. (2016). Public Stewardship of Private for-Profit Healthcare Providers in Low- and Middle-Income Countries. *Cochrane Database of Systematic Reviews*, 2016(8), 1-54. <https://doi.org/10.1002/14651858.CD009855.pub2>.
- Xiaoyi, L., Yihong, Y., Jinfeng, W., & Qingyun, W. (2011). Research on Indicators System and Fuzzy Comprehensive Evaluation Model for the City Development Potential. *2nd International Conference on E-Business and E-Government, ICEE 2011*, 2496–2499. <https://doi.org/10.1109/ICEBEG.2011.5877063>.

- You, S., Zhou, K.Z., & Jia, L. (2021). How does Human Capital Foster Product Innovation? The Contingent Roles of Industry Cluster Features. *Journal of Business Research*, 130(March), 335–347. <https://doi.org/10.1016/j.jbusres.2021.03.046>.
- Zahra, A. A., Nurmandi, A., Tenorio, C. B., Rahayu, R., Benectitos, S. H., Mina, F. L. P., & Haictin, K. M. (2021). Bibliometric Analysis of Trends in Theory-Related Policy Publications. *Emerging Science Journal*, 5(1), 96–110. <https://doi.org/10.28991/ESJ-2021-01261>.
- Ziolo, M., Niedzielski, P., Kuzionko-Ochrymiuk, E., Marcinkiewicz, J., Łobacz, K., Dyl, K., & Szanter, R. (2022). E-Government Development in European Countries: Socio-Economic and Environmental Aspects. *Energies*, 15(23), 1–17. <https://doi.org/10.3390/en15238870>.



