

## **DIGITAL ECONOMY TRANSFORMATION IN INCREASING GREEN ECONOMIC DEVELOPMENT IN INDONESIAN TOWARDS SUSTAINABLE DEVELOPMENT**

**Milla Febriza<sup>1a</sup>, Mutiara Monica<sup>2</sup>, Rozalinda<sup>3</sup>**

<sup>1a</sup>Universitas Islam Negeri Imam Bonjol Padang, Padang, Indonesia, e-mail: 2420030007@uinib.ac.id

<sup>2</sup>Universitas Islam Negeri Imam Bonjol Padang, Padang, Indonesia, e-mail: mutiara.monica@uinib.ac.id

<sup>3</sup>Universitas Islam Negeri Imam Bonjol Padang, Padang, Indonesia, e-mail: rozalinda@uinib.ac.id

(Submitted by Author: 13-10-2025)

(Accepted by Editorial Board: 26-12-2025)

(Published by Editorial Board: 31-12-2025)

### **ABSTRACT**

Advances in digital technology affect various sectors, including the economic sector with the presence of the digital economy, so that the digital economy is expected to help in the implementation of the green economy and support the achievement of Sustainable Development Goals. The purpose of this study is to analyze how the effects of digital transformation in the development of a green economy in Indonesia and support the achievement of sustainable development goals. This research is a qualitative Systematic Literature Review (SLR) using the Prisma model. The data sources in this study come from scopus indexed articles for the last 10 years, starting from 2015 to 2024. The data collection technique in this study used Publish or Perish software. The data analysis technique uses the Prisma model which is presented in a flow diagram. The results showed that based on previous research related to the digital economy and green economy, it was found that the digital economy is able to encourage the development of the green economy and can help achieve sustainable development goals by utilizing the development of digitalization technology to the fullest.

**Keywords:** Digital Economic Transformation; Green Economy; Sustainable Development Goals (SDGs)

---

Febriza, M., Monica, M., & Rozalinda. 2025. Digital Economy Transformation in Increasing Green Economic Development in Indonesian Towards Sustainable Development. *Jurnal Syarikah : Jurnal Ekonomi Islam* 11(2): 269-277.

---

## INTRODUCTION

In an effort to achieve the economic growth target of 6%-7% towards the Golden Indonesia Vision 2045, Indonesia cannot only rely on Brown Economy, but also have to start building circular economy, green economy, and Blue Economy (Limanseto, 2024). Today's global context is increasingly filled with awareness of serious environmental challenges (Anwar, 2022) such as climate change, biodiversity loss, and environmental pollution have become urgent global issues (Izzalqurny *et al.*, 2023). Therefore, special attention is needed in growing the green economy, one of which is by taking advantage of the progress of the digital economy. In addition, the process of transforming Indonesia into a sustainable green economy must balance economic, social and environmental aspects, as well as be in line with the SDGs, the Paris Agreement, the Golden Indonesia Vision 2045, and be able to achieve the target Net Zero Emissions (NZE) in 2060.

Previous research has found that digital economy transformation has a significant impact on green economic growth in Indonesia (Febrianti *et al.*, 2024). In addition, in other studies, it was also found that the impact of digitalization on green economic development has a positive promotional effect, but the impact of technological innovation on green economic development is not significant (Yang *et al.*, 2022). Not only that, other research found a relationship between the digital economy and green energy transformation where the optimized digital economy index verified the positive role of the digital economy in driving the green energy transition (C. Huang & Lin, 2024).

Another study that examines the relationship between the digital economy and green technology innovation, where based on the results of his research, it was found that the digital economy can simultaneously advance the quantity and quality of green technology innovations

(Song *et al.*, 2024). In addition, other research also examines the development of the digital economy, marketization, and green innovation. In the study, it was found that the development of the digital economy is effective in increasing the level of green innovation (Dong *et al.*, 2024). In this study, the researcher brought up the latest research by looking at the role and impact of this digital economy transformation on the development of the green economy towards sustainable economic development and the extent of the development of previous studies that examined the digital economy and the green economy.

The purpose of this study is to analyze how the influence of digital economy transformation on the development of the green economy towards sustainable development. Because digitalization can encourage green economic development in the form of empowerment in various industrial sectors, as well as digital economic transformation which is one of the drivers of green economic growth. Therefore, this research can show how the interactive relationship between digital economic transformation and the green economy and how it affects efforts to realize sustainable economic development.

The interactive relationship and level of influence between digitalization, technological innovation and green economic development is an urgent issue that must be addressed. The core of the green economy (Green Economy) itself is low carbon growth, resource efficiency, and social inclusivity which has implications for sustainable development, Management Energy, an urbanized green economy and including green industries (Fauzia, 2016). The process of economic digitalization related to the 4.0 revolution technology has many aspects and significant impacts, including on the environment that affect the interests of future generations (Vishnevsky *et al.*, 2021). The rapid advancement in the digital economy has provided many opportunities and solutions for the



economy, and Sustainable Development Goals are keywords studied in 2023, so researchers can be seen using these keywords to be studied in future research. This means that research with these topics and keywords is still in the latest publication year.

Based on the data obtained, the next step is to conduct a literature review study, then the data is entered in the flow diagram using the Prisma model. The flow diagram on the Prisma model shows the database identification process used in the research. The flow diagram illustrates the identification process starting from the total database at the beginning, then if the same publication is found, an exception is made. Then the screening stage is carried out, so that the final result of the data to be used will remain. The data identification process can be described as in figure 2.

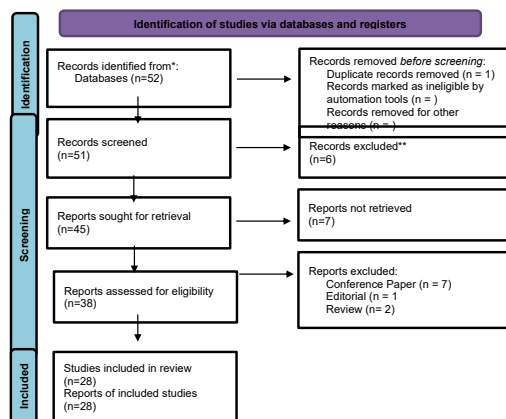


Figure 2. Diagram Flow Prisma Model Source: Processed by the author (2025)

Based on the Prisma Flow Diagram above, it shows that based on the results of searching for articles through Publish or Perish software on articles indexed by Scopus, data was obtained for 52 publications with the keywords "digital economy, green economy, SDGs". Then, of the 52 publications, there is 1 same publication so that the publications used are 51 articles. Of the 51 publications, there are 6 publications in the form of books, 7 publications in the form of book chapters, 7 publications in the form of Conference Papers, 1 publication in editorial form, and

1 publication in the form of reviews. So that there are 28 publications left in the form of articles used in research.

Table 1. Search Results for Articles that Meet the Criteria

No	Authors	Title	Year
1	A.B. Savchenko	Green and Digital Economy for Sustainable Development of Urban Areas	2020
2	D. Gürdür Broo	Built environment of Britain in 2040: Scenarios and strategies	2021
3	H. Fukui	Digital Earth: A platform for the SDGs and green transformation at the global and local level, employing essential SDGs variables	2021
4	D.H. Whittaker	Beyond secular stagnation: A digital and green economy?	2021
5	X. Qin	Digital finance and household carbon emissions in China	2022
6	Rena	Eco-innovations and sustainability in solid waste management: An indian upfront in technological, organizational, start-ups and financial framework	2022
7	E. Herman	The Interplay between Digital Entrepreneurship and Sustainable Development in the Context of the EU Digital Economy: A Multivariate Analysis	2022
8	PT. Optical	Analyzing the green financing and energy efficiency relationship in ASEAN	2022
9	M.J. Foncubiarta-Rodríguez	Influence of the entrepreneur's personal values in business governance style and their relationship with happiness at work	2022
10	S. Ghalwash	Scarabaeus Sacer: an iconic green brand advocating sustainability in the era of digital economy and connectivity	2022
11	Y. Shen	Digital Financial Inclusion, Land Transfer, and Agricultural Green Total Factor Productivity	2023
12	L. Huang	Can the digital economy promote urban green economic efficiency? Evidence from 273 cities in China	2023
13	K. Ali	Testing the role of digital financial inclusion in energy transition and diversification towards COP26 targets and sustainable development goals	2023
14	N. Saqib	Harnessing digital solutions for sustainable development: a quantile-based framework for designing an SDG framework for green transition	2023
15	R. Rahman	Green Supply Chain Management Research Trends and Linkages to UN Sustainable Development Goals	2023
16	H. Wu	Technology-driven energy revolution: the impact of digital technology on energy efficiency and its mechanism	2023
17	X. Apply	Role of environmental ownership and associated parameters to assess green patents in technologies with environmental scanning system as a controlling factor	2023
18	E. Van Yaroson	A systematic literature review exploring and linking circular economy and sustainable development goals in the past three decades (1991–2022)	2024
19	S. Ullah	Digital inclusion and environmental taxes: A dynamic duo for energy transition in green economies	2024
20	J. Zhang	Leveraging environmental corporate social responsibility to promote green purchases: The case of new energy vehicles in the era of sustainable development	2024
21	Y. Liu	A systemic efficiency measurement of resource	2024

Source: processed data (2024)

An overview of the role of the digital economy in the development of the green economy towards sustainable development can be seen through the development of studies taken from the table above. Digitalization and the ten branches of the green economy can provide a breakthrough in ensuring sustainable development (Savchenko & Borodina, 2020). Digital technologies and the green information economy can ensure a better digitally built future and increase the urgency to achieve the Sustainable Development goals (Gürdür Broo et al., 2021). The digital earth is a valuable platform that can contribute to the

achievement of the SDGs and green transformation (Fukui et al., 2021).

Furthermore, Japan has started digital and green transformation in the era of Society 5.0, DX, ESG/SDGs, green growth and sustainable capitalism (Whittaker, 2021). Digitalization of finance with the advent of digital finance provides an opportunity to address the trade-off between sustainable economic growth and environmental degradation (Qin et al., 2022) and digital technology is able to increase (Shen et al., 2023) green economic productivity and sustainable development. In India, digital technology eco-innovations show significant progress in the sustainable development goals (SDGs) score from 2000 to 2019 (Rena et al., 2022).

The development of the digital economy has changed human lifestyles and production and provided a new approach in the efficiency of the green economy and achieved the goals of sustainable development (L. Huang et al., 2023). Financial technology can help countries promote renewable energy and achieve sustainable development goals (Saqib et al., 2023) and technology integration to increase digital financial inclusion and the global economy and promote sustainable development (Hasan et al., 2024). In addition, one of the effects of the digital economy on digital entrepreneurship is the main driver of sustainable development (Herman, 2022). Furthermore, energy efficiency is an important factor to achieve sustainable development goals through green financing (Quang & Thao, 2022). Furthermore, entrepreneurial behavior in utilizing digital technology can also affect the creation of a green economy (Foncubierta-Rodríguez, 2022).

Based on the findings of the research in the literature review above, it can be concluded that there is progress and development of technology and digitalization has an impact on the economic sector. The development of the digital economy today contributes to the development and growth of the green

economy and encourages the achievement of the Sustainable Development Goals (SDGs). This means that the role of the digital economy is urgently needed in the development of the green economy and achieving the Sustainable Development Goals. From the findings of this research, it can answer questions related to the role of the digital economy in the development of the green economy towards sustainable development.

## CONCLUSION AND IMPLICATION

Based on 52 articles that have been reviewed through a systematic literature review process with a time span of 2015 to 2024, the results show that there are 28 articles that meet the criteria and are used as references in this study. Based on the findings obtained, it shows that the digital economy plays a major role in the growth and development of the green economy and supports the achievement of the Sustainable Development Goals (SDGs). This research has research limitations, namely only taking data from 2015-2024 through the help of Publish or Perish software on scopus indexed articles. In addition, this research is limited by using the keywords “digital economy, green economy, SDGs” in the publication search. For this reason, researchers suggest that future research bring up other updates according to the trends of the time. Future research is expected to examine issues that are still minimal or have not been studied by previous studies such as the issue of Sustainable Development Goals as one of the issues that is widely discussed today and oriented towards the future.

## REFERENCES

- Agus Subagyo. (2020). Application of Research Methods: Qualitative, Quantitative, and Mix Methods Research Practices. In *Media Intelligence* (Issue October).
- Anwar, M. (2022). Green Economy as a strategy in dealing with economic and

- multilateral problems. *Journal of State Taxes and Finance (PKN)*, 4(1S), 343–356.  
<https://doi.org/10.31092/jpkn.v4i1s.1905>
- Arifina, M., & Adinugraha, H. H. (2022). Analysis of Export Performance on Indonesia's Economic Recovery. *Ecopem: Journal of Development Economics*, 4(3), 21–30.  
<https://doi.org/10.32938/jep.v7i3.2669>
- Brandenburg, M., Govindan, K., Sarkis, J., & Seuring, S. (2014). Quantitative models for sustainable supply chain management: Developments and directions. *European Journal of Operational Research*, 233(2), 299–312.  
<https://doi.org/10.1016/j.ejor.2013.09.032>
- Bukht, R., & Heeks, R. (2018). Defining, conceptualising and measuring the digital economy. *International Organisations Research Journal*, 13(2), 143–172.  
<https://doi.org/10.17323/1996-7845-2018-02-07>
- D'Amato, D., Droste, N., Allen, B., Kettunen, M., Lähtinen, K., Korhonen, J., Leskinen, P., Matthies, B. D., & Toppinen, A. (2017). Green, circular, bio economy: A comparative analysis of sustainability avenues. *Journal of Cleaner Production*, 168, 716–734.  
<https://doi.org/10.1016/j.jclepro.2017.09.053>
- Dhingra, V., Keswani, S., Sama, R., & Rafik Noor Mohamed Qureshi, M. (2024). Social media influencers: a systematic review using PRISMA. *Cogent Business and Management*, 11(1).  
<https://doi.org/10.1080/23311975.2024.2368100>
- Dong, X., Guo, K., & Zhao, X. (2024). Does digital economy promote regional green innovation? An empirical study based on the transmission effect and threshold effect of marketization. *Journal of Digital Economy*, 3, 47–61.  
<https://doi.org/10.1016/j.jdec.2024.07.002>
- Fauzia, I. Y. (2016). The Urgency of Green Economy Implementation from the Perspective of the Dharuriyah Approach in Maqashid Al-Shariah. *Jebis: Journal of Islamic Economics and Business*, 2(1), 87–104.  
<https://ejournal.unair.ac.id/Jebis/Article/View/1503>
- Febrianti, D., Haryani, S., & Nur Anggraeni, R. (2024). The Impact of Digital Economic Transformation on Green Economic Growth in E Indonesia. *Journal of Sinar Management*, 11, 45–50.
- Foncubierta-Rodríguez, M. J. (2022). Influence of the entrepreneur's personal values in business governance style and their relationship with happiness at work. *Corporate Governance (Bingley)*, 22(3), 592–617.  
<https://doi.org/10.1108/CG-05-2021-0197>
- Fukui, H., Man, D. C., & Phan, A. (2021). Digital Earth: A platform for the SDGs and green transformation at the global and local level, employing essential SDGs variables. *Big Earth Data*, 5(4), 476–496.  
<https://doi.org/10.1080/20964471.2021.1948677>
- Gürdür Broo, D., Lamb, K., Ehwi, R. J., Pärn, E., Koronaki, A., Makri, C., & Zomer, T. (2021). Built environment of Britain in 2040: Scenarios and strategies. *Sustainable Cities and Society*, 65.  
<https://doi.org/10.1016/j.scs.2020.102645>
- Hao, X., Li, Y., Ren, S., Wu, H., & Hao, Y. (2023). The role of digitalization on green economic growth: Does industrial structure optimization and green innovation matter? *Journal of Environmental Management*, 325.  
<https://doi.org/10.1016/j.jenvman.2022.116504>
- Hasan, M. M., Hasan, M. E., & Ghosh, T. (2024). Transforming developing economies by shifting paradigms

- beyond natural resources. The fintech and social dynamics for sustainable mineral policy. *Resources Policy*, 94. <https://doi.org/10.1016/j.resourpol.2024.105086>
- Herman, E. (2022). The Interplay between Digital Entrepreneurship and Sustainable Development in the Context of the EU Digital Economy: A Multivariate Analysis. *Mathematics*, 10(10). <https://doi.org/10.3390/math10101682>
- Huang, C., & Lin, B. (2024). How digital economy index selection and model uncertainty will affect energy green transition. *Energy Economics*, 136. <https://doi.org/10.1016/j.eneco.2024.107774>
- Huang, L., Zhang, H., Si, H., & Wang, H. (2023). Can the digital economy promote urban green economic efficiency? Evidence from 273 cities in China. *Ecological Indicators*, 155. <https://doi.org/10.1016/j.ecolind.2023.110977>
- Ii, B. A. B., & Pustaka, T. (2015). et al., 2015). *British Food Journal*, 118(12), 5–13.
- Izzalqurny, T. R., Ferdiyansyah, R. A., & Abdalla, A. F. (2023). Green Economy Transformation in Indonesia. In *Eureka Media Aksara*.
- Janoušková, S., Hák, T., & Moldan, B. (2018). Global SDGs assessments: Helping or confusing indicators? *Sustainability (Switzerland)*, 10(5), 1–14. <https://doi.org/10.3390/su10051540>
- Liao, W. (2023). How does the digital economy affect the development of the green economy? Evidence from Chinese cities. *PLoS ONE*, 18(8 August), 1–24. <https://doi.org/10.1371/journal.pone.0289826>
- Limanseto, H. (2024). Accelerating Regional Economic Growth Through Optimizing the Digitalization of Local Government Transactions 23. *Press Release, HM.4.6/327/SET. M.EKON.3/09/2024, 37(2023), 2023–2024*.
- Marpaung, C. R., Tsabit, I. A. Z., & Pangestuti, I. R. D. (2021). The Role of Gen-Z in Supporting Sustainable Development Through Green Economy Towards Golden. *Research Horizon*, 1(3), 86–93.
- Marzali, A.-. (2016). Writing a Literature Review. *ETNOSIA : Indonesian Journal of Ethnography*, 1(2), 27. <https://doi.org/10.31947/etnosia.v1i2.1613>
- Morton, S., Pencheon, D., & Squires, N. (2017). Sustainable Development Goals (SDGs) and their Implementation. *British Medical Bulletin*, 124(1), 1–19.
- Nurseha, S., Kamelia, E., Suri, V., & Fikri, M. (2024). The urgency of the green economy transition by the younger generation on the influence of sustainable development. *Journal of Economics, Management and Accounting*, 2(5), 133–151. <https://doi.org/10.572349/neraca.v1i2.163%0Ahttps://jurnal.kolibi.org/index.php/neraca/article/view/163>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *The BMJ*, 372. <https://doi.org/10.1136/bmj.n71>
- Pers, S. (2024). The Government Encourages the Implementation of the Green Economy to Stabilize Long-Term Economic Growth. In *the Coordinating Ministry for Economic Affairs of the Republic of Indonesia*.
- Pogge, T., & Sengupta, M. (2015). The Sustainable Development Goals (SDGs): Nice idea, poor execution. *Washington International Law Journal*, 24(3), 571–588. <https://sustainabledevelopment.un.org/owg.html>

- Putri, N. S., Saradeba, N., & Rachman, I. F. (2024). TRANSFORMATION THROUGH DIGITAL LITERACY: THE ROLE OF THE YOUNGER GENERATION IN REALIZING THE SDPS AND GLOBAL COMPETITIVENESS. *INDOPEDIA (Learning and Education Innovation)*, 2, 348–356.
- Qin, X., Wu, H., & Li, R. (2022). Digital finance and household carbon emissions in China. *China Economic Review*, 76. <https://doi.org/10.1016/j.chieco.2022.101872>
- Quang, P. T., & Thao, D. P. (2022). Analyzing the green financing and energy efficiency relationship in ASEAN. *Journal of Risk Finance*, 23(4), 385–402. <https://doi.org/10.1108/JRF-02-2022-0046>
- Rena, Yadav, S., Patel, S., Killedar, D. J., Kumar, S., & Kumar, R. (2022). Eco-innovations and sustainability in solid waste management: An indian upfront in technological, organizational, start-ups and financial framework. *Journal of Environmental Management*, 302. <https://doi.org/10.1016/j.jenvman.2021.113953>
- Roni, R. G., Tsipi, H., Ofir, B. A., Nir, S., & Robert, K. (2022). Disease evolution and risk-based disease trajectories in congestive heart failure patients. *Journal of Biomedical Informatics*, 125(November 2021), 103949. <https://doi.org/10.1016/j.jbi.2021.103949>
- Sampedro, R. (2021). The Sustainable Development Goals (SDG). *Carreteras*. <https://doi.org/10.1201/9781003080220-8>
- Saqib, N., Mahmood, H., Murshed, M., Duran, I. A., & Douissa, I. Ben. (2023). Harnessing digital solutions for sustainable development: a quantile-based framework for designing an SDG framework for green transition. *Environmental Science and Pollution Research*, 30(51), 110851–110868. <https://doi.org/10.1007/s11356-023-30066-x>
- Savchenko, A. B., & Borodina, T. L. (2020). Green and Digital Economy for Sustainable Development of Urban Areas. *Regional Research of Russia*, 10(4), 583–592. <https://doi.org/10.1134/S2079970520040097>
- Seltina, I., Deinsyah, P., & Rohani, S. (2023). 413-Article Text-1680-1-10-20230711. *Journal of Comprehensive Science*, 5(7), 1–14. <https://www.ncbi.nlm.nih.gov/books/NBK558907/>
- Shen, Y., Guo, X., & Zhang, X. (2023). Digital Financial Inclusion, Land Transfer, and Agricultural Green Total Factor Productivity. *Sustainability (Switzerland)*, 15(8). <https://doi.org/10.3390/su15086436>
- Song, S., Wen, J., Li, Y., & Li, L. (2024). How does digital economy affect green technological innovation in China? New evidence from the "Broadband China" policy. *Economic Analysis and Policy*, 81, 1093–1112. <https://doi.org/10.1016/j.eap.2024.01.008>
- Subramaniam, N., Akbar, S., Situ, H., Ji, S., & Parikh, N. (2023). Sustainable development goal reporting: Contrasting effects of institutional and organisational factors. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2023.137339>
- Usman, Wartoyo, Haida, N., & Wahyuningsih, N. (2024). Implementation of Sustainable Development Goals (SDGs) in Indonesia: Islamic Economic Perspective. *Al-Masharif : Journal of Economics and Islam*, 11(1), 108–126.
- Vishnevsky, V. P., Harkushenko, O., Zanzidra, M. Y., & Kniaziev, S. I. (2021). Digital and green economy: Common grounds and contradictions. *Science and Innovation*, 17(3), 14–27

- <https://doi.org/10.15407/scine17.03.014>
- Waruwu, M. (2023). Educational Research Approach: Qualitative Research Method, Quantitative Research Method and Mixed Method. *Tambusai Education Journal*, 7(1), 2896–2910.
- Whittaker, D. H. (2021). Beyond secular stagnation: A digital and green economy? *Japanese Political Economy*, 47(4), 365–386. <https://doi.org/10.1080/2329194X.2021.2012806>
- Yang, W., Chen, Q., Guo, Q., & Huang, X. (2022). Towards Sustainable Development: How Digitalization, Technological Innovation, and Green Economic Development Interact with Each Other. *International Journal of Environmental Research and Public Health*, 19(19). <https://doi.org/10.3390/ijerph191912273>
- Zhang, Z., Fu, W. K., & Ma, L. (2022). The impact of digital economy on green development in China. *Frontiers in Environmental Science*, 10(August), 1–13. <https://doi.org/10.3389/fenvs.2022.991278>
- Zhou, Y. (2022). The Application Trend of Digital Finance and Technological Innovation in the Development of Green Economy. *Journal of Environmental and Public Health*, 2022. <https://doi.org/10.1155/2022/1064558>