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Digitalisation, Green Economy Practices, and the Sustainability of Export-Oriented MSMEs: A *Maqāṣid al-Sharīʿah* Perspective

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Abstract

This research examines the associations of digitalisation and green economy practices with the sustainability of export-oriented micro, small, and medium enterprises (MSMEs) in Lampung and West Java, Indonesia, and interprets the findings through a *maqāṣid al-sharīʿah* perspective. The research employs a quantitative questionnaire-based design with purposive sampling. The analysis included 36 observations, analysed using multiple linear regression. *Maqāṣid al-sharīʿah* serves as a normative interpretive framework rather than a measured variable in the statistical model. The results indicate that digitalisation is not statistically significantly associated with MSME sustainability ($B = -0.083$; $p = 0.585$), whereas green economy practices exhibit a positive association ($B = 0.539$; $p < 0.001$). The model accounts for 43.3% of the observed variance in sustainability, with an adjusted R^2 of 0.399. These findings do not establish causal relationships or demonstrate that digitalisation has no practical value. The maqāṣid interpretation distinguishes enterprise continuity from the broader protection of life, legitimate wealth, and public welfare. It proposes that environmental and digital practices should be assessed through their consequences, transparency, and distribution of benefits and burdens among affected stakeholders. The research contributes an explicit connection between empirical sustainability findings and Islamic

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normative evaluation without claiming to validate maqāṣid attainment. Its implications support context-sensitive digital capability development alongside verifiable environmental improvements. Purposive sampling and limited geographical coverage restrict the generalisability of the findings.

Keywords: digitalisation; export-oriented enterprises; green economy practices; MSME sustainability; *maqāṣid al-sharīʿah*.

Introduction

Industries worldwide has been dramatically affected by the COVID-19 pandemic. As a result, various developing countries have attempted to bounce back from adversity by transforming conventional businesses into digitalized enterprises, following the current trend of digitalisation in developed countries.[1] The use of internet networks is effectively one of the main factors that has supported the accelerated use of digitalisation in various industries, such as the tourism and education sectors, for faster economic recovery in the new normal era.[2] Previous literature states that the easier internet access is, the more internet users will increase.[3] Thus, global online businesses have been proliferating. The internet also allows businesses to interact with international consumers, opening up new opportunities for growth, financing, and expansion.[4] Thanks to the digitalisation era, there are better prospects for micro, small, and medium enterprises (MSMEs) in reaching consumers throughout the world without the necessity of establishing a physical shop.[5] In Indonesia, MSME owners are maximizing the digitalisation of the MSME industry to make it easier to promote goods and services. Several websites, e-commerce platforms, and social media have proven to save costs and time, speed up sales transactions, and provide

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[1] García, Emma, and Elaine Weiss. 2020. 'COVID-19 and Student Performance, Equity, and U.S. Education Policy'. *Economic Policy Institute*, 1–60.

[2] Zhao, X., Xie, C., Huang, L., Wang, Y., & Han, T. (2023). How digitalisation promotes the sustainable integration of culture and tourism for economic recovery. *Economic Analysis and Policy, 77*, 988–1000. https://doi.org/10.1016/j.eap.2023.01.005.

[3] Awaludin, Muryan, Verdi Yasin, and Fitria Risyda. 2024. 'The Influence of Artificial Intelligence Technology, Infrastructure and Human Resource Competence on Internet Access Networks'. *Inform: Jurnal Ilmiah Bidang Teknologi Informasi Dan Komunikasi* 9 (2): 111–20.

[4] Demirgüç-Kunt, Asli, Leora Klapper, Dorothe Singer, Saniya Ansar, and Jake Hess. 2020. 'The Global Findex Database 2017: Measuring Financial Inclusion and Opportunities to Expand Access to and Use of Financial Services'. *World Bank Economic Review* 34 (2018): S2–8. https://doi.org/10.1093/wber/lhz013.

[5] Kádárová, Jaroslava, Laura Lachvajderová, and Dominika Sukopová. 2023. 'Impact of Digitalisation on SME Performance of the EU27: Panel Data Analysis'. *Sustainability (Switzerland)* 15 (13). https://doi.org/10.3390/su15139973.

effective delivery services.[6] In this way, internet-based business activities can bring success and impact the lives of technology-savvy people.[7]

However, the use of digital technology is not yet optimal in Indonesia. The Ministry of Cooperatives and Small and Medium Enterprises noted that the number of MSMEs embracing the new digital ecosystem had exceeded 12 million in June 2021; nonetheless, this figure only represents 19 percent of the total number of MSMEs.[8] The literature explains that MSMEs experience several obstacles with regard to digitalisation, and they also fail to understand how digital transformation works.[9] As a result, they experience difficulties in marketing their products, face high operational costs, encounter a lack of support, and have a limited customer base, especially in rural areas.[10] Based on the literature, there is a gap in society's adaptive attitude towards technology, thus resulting in ineffective utilization of digital technology to empower themselves.[11]

Along with advances in digital technology, the green economy is changing the direction of world economic development with new market mechanisms and new business models developed based on the digital economy.[12] A green economy is defined as an economy that is environmentally friendly for society.[13]

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[6] Purba, Mas Intan, Demak Claudia Yosephine Simanjutak, Yois Nelsari Malau, Walmi Sholihat, and Edy Anas Ahmadi. 2021. 'The Effect of Digital Marketing and E-Commerce on Financial Performance and Business Sustainability of MSMEs during COVID-19 Pandemic in Indonesia'. *International Journal of Data and Network Science* 5 (3): 275–82. https://doi.org/10.5267/j.ijdns.2021.6.006.

[7] Kilay, Alfonz Lawrenz, Bachtiar H. Simamora, and Danang Pinardi Putra. 2022. 'The Influence of E-Payment and E-Commerce Services on Supply Chain Performance: Implications of Open Innovation and Solutions for the Digitalisation of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia'. *Journal of Open Innovation: Technology, Market, and Complexity* 8 (3): 119. https://doi.org/10.3390/joitmc8030119.

[8] KNEKS. 2021. 'UMKM Halal Dan Ketahanan Ekonomi Indonesia'. *Komite Nasional Ekonomi Dan Keuangan Syariah*, 2021.

[9] Almaududi Ausat, Abu Muna, and Suherlan Suherlan. 2021. 'Obstacles and Solutions of MSMEs in Electronic Commerce during Covid-19 Pandemic: Evidence from Indonesia'. *BASKARA : Journal of Business and Entrepreneurship* 4 (1): 11. https://doi.org/10.54268/baskara.v4i1.10318.

[10] Fanelli, Rosa Maria. 2021. 'Barriers to Adopting New Technologies within Rural Small and Medium Enterprises (SMEs)'. *Social Sciences* 10 (11). https://doi.org/10.3390/socsci10110430.

[11] Li, Haili, and Genia Kostka. 2024. 'Navigating the Digital Age: The Gray Digital Divide and Digital Inclusion in China'. *Media, Culture & Society* 46 (6): 1181–99.

[12] Mohsin, Muhammad, Farhad Taghizadeh-Hesary, Nadeem Iqbal, and Hayot Berk Saydaliev. 2022. 'The Role of Technological Progress and Renewable Energy Deployment in Green Economic Growth'. *Renewable Energy* 190:777–87. https://doi.org/10.1016/j.renene.2022.03.076.

[13] Wang, Weilong, Xiaodong Yang, Jianhong Cao, Wenchao Bu, Abd Alwahed Dagestani, Tomiwa Sunday Adebayo, Azer Dilanchiev, and Siyu Ren. 2022. 'Energy

This economic concept focuses on minimal carbon use, resource savings, and inclusive development at the regional level. Currently, the global focus is not only on the economic sector but also on environmental sustainability. Research finds that both technology and green economic growth have a positive impact on national food security.[14] Several countries and regional blocs, including China, Ghana, and the European Union, are implementing the green economy and adopting digital technology for sustainable development and increasing resource efficiency.[15] A systematic review assesses that the response to using environmentally friendly products in emerging markets continues to increase every year.[16]

This promising market is forcing MSME players to adapt and change their views towards environmentally friendly businesses and encouraging them to focus on green and digital economy-based businesses. [17] Nonetheless, people's digital literacy is still low, and environmentally friendly growth is also not optimal.[18] Meanwhile, some believe that digital technology can positively influence MSMEs' businesses, but some others say that the influence is negative. Likewise, not all findings mention significant influences of the green economy on MSMEs' businesses.[19] Behind the great potential of utilizing digital technology and establishing environmentally friendly businesses, the literature

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Internet, Digital Economy, and Green Economic Growth: Evidence from China'. *Innovation and Green Development* 1 (2): 100011. https://doi.org/10.1016/j.igd.2022.100011.

[14] Lee, Chien Chiang, Mingli Zeng, and Kang Luo. 2023. 'Food Security and Digital Economy in China: A Pathway towards Sustainable Development'. *Economic Analysis and Policy* 78 (1): 1106–25. https://doi.org/10.1016/j.eap.2023.05.003.

[15] Ali, Ernest Baba, Valery Pavlovich Anufriev, and Bismark Amfo. 2021. 'Green Economy Implementation in Ghana as a Road Map for a Sustainable Development Drive: A Review'. *Scientific African* 12 (July):e00756. https://doi.org/10.1016/j.sciaf.2021.e00756.

[16] Kautish, Pradeep, and Rajesh Sharma. 2020. 'Determinants of Pro-Environmental Behaviour and Environmentally Conscious Consumer Behaviour: An Empirical Investigation from Emerging Market'. *Business Strategy and Development* 3 (1): 112–27. https://doi.org/10.1002/bsd2.82.

[17] Achmad, Zainal Abidin, Juwito Juwito, and Muhammad Saud. 2020. 'The Local Creative Ads on Sritanjung FM to Increase Financial Revenue during COVID-19 Pandemic'. *Bricolage : Jurnal Magister Ilmu Komunikasi* 6 (02): 135. https://doi.org/10.30813/bricolage.v6i02.2229.

[18] Harmoko, Danang Dwi. 2021. 'Digital Literacy As A Solution To Improve The Quality Of Indonesia's Human Resources'. *Research and Development Journal of Education* 7 (2): 413. https://doi.org/10.30998/rdje.v7i2.10569.

[19] Harisanty, Dessy, Dyah Puspita Srirahayu, Nove E Variant Anna, Endang Fitriyah Fitriyah Mannan, Esti Putri Anugrah, and Nasa Zata Dina. 2021. 'Digital Literacy for Covid 19 Information in Indonesian Society'. *Library Philosophy and Practice*, no. May, 1–14.

states that various challenges have hampered the growth, sustainability, and alignment of MSMEs with the sustainable development goals (SDGs).[20] The Indonesian Employers' Association noted that around 69 percent of MSMEs do not have a clear understanding of the SDGs and how to take advantage of digitalisation to improve their business networks. Another challenge is the difficulty in meeting environmental compliance requirements and greenhouse gas emissions. Around 78 percent of small companies experience losses due to environmental compliance requirements and greenhouse gas emissions that are too high. Several laws, registration, and tax regulations can limit the MSMEs' industry from extending business permits and registering their businesses. This is one of the obstacles in achieving financial inclusion and encouraging sustainability. Previous studies have highlighted by previous studies has highlighted the problems of limited access to external finance, data security, and lack of awareness regarding sustainable practices, as well as complex environmental regulations that prevent MSMEs from implementing sustainable practices.[21] However, these studies have not undertaken in-depth research on the relationship between of digitalisation and the green economy on the sustainability of MSMEs in Indonesia, especially in export market activities. [22] Effective export activities can provide great opportunities to reach consumers on the international stage, increasing competitiveness, increasing foreign exchange, and growing investment quickly.[23]

The sustainability of export-oriented micro, small, and medium enterprises (MSMEs) has become an increasingly important academic issue because these enterprises are expected not only to contribute to economic growth but also to support inclusive and environmentally sustainable development. In the era of digital transformation, MSMEs are required to simultaneously improve digital capabilities, expand export markets, and adopt

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[20] Handayati, R., Rozaq, A. S., As'adi, F. N., Saputra, M. Z. D., & Ubaidillah, M. M. (2024). Challenges and solutions in the implementation of digital technology in MSMEs: Perspectives from entrepreneurs and consumers. *Technology and Society Perspectives, 2*(2), 244–251. https://doi.org/10.61100/tacit.v2i2.211.

[21] Saifurrahman, Adi, and Salina Hj Kassim. 2024. 'Regulatory Issues Inhibiting the Financial Inclusion: A Case Research among Islamic Banks and MSMEs in Indonesia'. *Qualitative Research in Financial Markets* 16 (4): 589–617. https://doi.org/10.1108/QRFM-05-2022-0086.

[22] Wijaya, Adi, Muhammad Awaluddin, and A. Erwin Kurniawan. 2022. 'The Essence of Fuel and Energy Consumptions to Stimulate MSMEs Industries and Exports: An Empirical Story for Indonesia'. *International Journal of Energy Economics and Policy* 12 (2): 386–93. https://doi.org/10.32479/ijeep.12645.

[23] Artaya, I Putu, Yuniningsih Yuniningsih, Che Zalina Bt Zulkifli, and Wasana Boonsong. 2023. 'Increasing The Export Performance of Indonesian MSMEs' Leading Products in The Global Market in Supporting The Economy in 2023'. *The Spirit of Society Journal* 6 (2): 122–35. https://doi.org/10.29138/scj.v6i2.2198.

environmentally responsible business practices. Although digitalisation and the green economy have been widely recognised as strategic drivers of MSME competitiveness, the associations of these two dimensions with sustainability in shaping sustainable MSME performance remains insufficiently understood, particularly in developing countries where institutional conditions, socio-cultural values, and business capabilities differ considerably from those in developed economies. Consequently, further investigation is required to generate a more comprehensive understanding of how digital transformation and environmentally sustainable practices jointly contribute to long-term MSME sustainability. [24]

Existing studies have predominantly examined digitalisation and the green economy as separate determinants of MSME performance. Previous research generally focuses on the direct effect of digital technologies on competitiveness, financial performance, innovation, or export capability, while studies on the green economy mainly emphasize environmental practices, resource efficiency, or sustainable production. Only limited research has attempted to integrate these two strategic dimensions within a single analytical framework, particularly in the context of export-based MSMEs in Indonesia. Furthermore, most previous studies employ institutional theory, stakeholder theory, legitimacy theory, or resource-based perspectives to explain sustainability, which primarily emphasize economic efficiency, regulatory compliance, and stakeholder expectations. These perspectives provide valuable explanations of organisational behaviour; however, they pay limited attention to the ethical, moral, and social values that influence sustainable business practices in Muslim-majority societies. This theoretical limitation constitutes an important research gap that requires further scholarly attention.

Previous studies have examined the roles of digitalization and green economy practices in promoting MSME sustainability, but their findings remain inconclusive. While digitalization is generally expected to enhance efficiency, innovation, market access, and business resilience, empirical evidence has not consistently demonstrated a significant contribution to MSME sustainability. Similarly, green economy practices have increasingly been recognized as important for integrating economic growth with environmental and social considerations. However, existing studies have predominantly examined these factors from conventional economic, technological, and sustainability perspectives, with limited attention to the underlying ethical and value-based dimensions of sustainability in Muslim-majority contexts.

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[24] Mala, Iva Khoiril, Imam Mukhlis, Fulgentinus Danardana Murwani, and Choirul Anam. 2024. 'Export-Based MSME Internationalization Development Strategy: Digital Marketing and Digital Leadership in Indonesia'. *Asian Journal of Management Analytics* 3 (2): 439–48. https://doi.org/10.55927/ajma.v3i2.8674.

This inconsistency and theoretical limitation indicate a gap in understanding how MSME sustainability can be assessed beyond economic, environmental, and social performance. In particular, limited research his incorporated an Islamic value-based perspective to explain whether digitalization and green economy practices contribute to broader and more meaningful dimensions of sustainable development. This gap is particularly relevant in Indonesia, where Islamic value are closely embedded in the socio-economic environment and influence business ethics, entrepreneurial behaviour, and public policy. To address this gap, this research incorporates the *Maqāṣid al-sharīʿah* framework as an interpretive lens for understanding MSME sustainability. The framework, which encompasses the preservation of religion (din), life (nafs), intellect ('aql), progeny (nasl), and wealth (mal), provides a holistic ethical foundation for evaluating whether digitalization and green economy practices generate benefits that extend beyond financial performance. From this perspective, sustainability involves not only economic resilience and environmental responsibility but also ethical conduct, social welfare, human development, and the long-term preservation of resources. The use of *Maqāṣid al-sharīʿah* is therefore particularly appropriate for the Indonesian context and provides an Islamicc ethical perspective that complements conventional sustainability theories.

Accordingly, this research aims to examine the influence of digitalization and green economy practices on MSME sustainability while interpreting these relationship through the *Maqāṣid al-sharīʿah* perspective. The research contributes to the literature by integrating technological, environmental, and Islamic ethical dimensions into a more comprehensive framework for analysing MSME sustainability. This integration extends existing sustainability research by demonstrating how *Maqāṣid al-sharīʿah* can provide a contextually relevant value-based foundation for understanding sustainable MSME development in a Muslim-majority economy.[25] Unlike prior studies that primarily applied institutional or stakeholder theories, this research contributes a unique normative dimension relevant to Indonesia's socio-religious context. Legitimacy Theory argues that business sustainability depends on conformity with societal expectations and regulations. Therefore, this research complements them with the *Maqāṣid al-sharīʿah* framework. In this regard, the *maqāṣid al-sharīʿah* framework offers a holistic and value-based paradigm that aligns economic, social, and environmental dimensions of sustainability with the higher objectives of Islamic law. Integrating *maqāṣid al-sharīʿah* into MSME strategies ensures that

[25] Julianto, I Putu, I Gd Nandra Hary Wiguna, and I Nyoman Putra Yasa. 2022. 'Analysis of the Digitalisation of Accounting Information Systems in Supporting the Sustainability of MSMEs During the Pandemic (Research on MSMEs in Buleleng Regency)'. *JIMAT (Jurnal Ilmiah Mahasiswa Akuntansi) Undiksha* 13 (04): 1277–84.

digitalisation and green economy practices not only aim for economic resilience but also adhere to principles of justice, environmental stewardship, and social well-being in accordance with Islamic teachings. The following section explores how the *maqāṣid al-sharīʿah* approach can complement and enhance existing sustainability frameworks in the MSME sector. [26]

Digitalisation offers the prospect of marketing products and developing MSME businesses digitally, which is supported by two requirements: increasing the human resource capacity of MSME business actors and supporting government policies that encourage MSMEs.[27] The digital economy has been proven to support the acceleration of economic recovery, business resilience, and industrial sustainability.[28] One of the factors that supports the effectiveness of the digital economy is increasing e-literacy programs.[29] Previous studies using descriptive qualitative methods found that 80 percent of MSMEs in urban areas utilize digital technology, which has a major impact on marketing management quality.[30] Another research found the positive influence of digitalisation on competitiveness, sales turnover, competitive advantage, and financial MSME sustainability.[31] On the basis of the discussion, the first hypothesis is presented as follows:

H_1: The implementation of digitalisation is associated with the sustainability of export-based MSMEs in Indonesia

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[26] Supari, Supari, and Hendranata Anton. 2022. 'The Impact of the National Economic Recovery Program and Digitalisation on MSME Resilience during the COVID-19 Pandemic: A Case Research of Bank Rakyat Indonesia'. *Economies* 10 (7). https://doi.org/10.3390/economies10070160.

[27] Kusumaningtyas, Reza Octavia, Rahayu Subekti, Abdul Kadir Jaelani, Asron Orsantinutsakul, and Utkarsh K Mishra. 2022. 'Reduction of Digitalisation Policy in Indonesian MSMEs and Implications for Sharia Economic Development'. *JURIS (Jurnal Ilmiah Syariah)* 21 (2): 157–71.

[28] Pratama, D., Nurwani, N., & Nasution, Y. S. J. (2023). The effect of understanding of financial literacy and ease of digital payment on the continuity of MSMEs in the digitalisation era. *Indonesian Interdisciplinary Journal of Sharia Economics, 6*(2), 618–638. https://doi.org/10.31538/iijse.v6i2.3468.

[29] Pandey, Anupriya. 2023. 'Digitalisation of MSME Sector: Policy Initiatives and Challenges'. *IUP Journal of Entrepreneurship Development* 20 (2): 17–33.

[30] Suliswanto, Muhammad Sri Wahyudi, and Mohammad Rofik. 2019. 'Digitalisation of Micro, Small & Medium Enterprises (MSMEs) in East Java, Indonesia'. *Muhammadiyah International Journal of Economics and Business* 2 (1): 61–79. https://doi.org/10.1017/CCOL9780521886994.004.

[31] Indriastuti, Maya, and Indri Kartika. 2022. 'The Impact of Digitalisation on MSMEs' Financial Performance: The Mediating Role of Dynamic Capability'. *Jurnal Economia* 18 (2): 240–55. https://doi.org/10.21831/economia.v18i2.42790.

The advent of the digital age has transformed the digital economy into an important enabler of economic growth and has created new opportunities for MSMEs to expand their markets and improve their business performance.[32] Digital media platforms, in particular, have become increasingly important for expanding market reach, while technological capabilities and social media usage can support the competitiveness and export performance of SMEs.[33] However, digitalisation also introduces challenges, including data security concern, indicating that technological adoption does not automatically translate into sustainable business outcomes.[34]

MSMEs try to implement the green economy concept which is the current goal of sustainable development.[35] Another reason for the interest in the green economy is that its implementation assists in improving the MSME sustainability, which is one measure of supporting national economic growth.[36] Previous findings indicate that many MSMEs are not fully ready to implement the green economy concept.[37]

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[32] Saputra, Dony, Nelvira Djiu, and Nicole Victoria Kong. 2023. 'The Effect of Technological Capabilities and Social Media Usage on Export Performance with Competitive Advantage as Intervening Variable on SMEs in Indonesia'. In *2023 International Seminar on Application for Technology of Information and Communication: Smart Technology Based on Industry 4.0: A New Way of Recovery from Global Pandemic and Global Economic Crisis, ISemantic 2023*. https://doi.org/10.1109/iSemantic59612.2023.10295292.

[33] Zhang, Yonggang, and Azer Dilanchiev. 2022. 'Economic Recovery, Industrial Structure and Natural Resource Utilization Efficiency in China: Effect on Green Economic Recovery'. *Resources Policy* 79 (4): 1–20. https://doi.org/10.1016/j.resourpol.2022.102958.

[34] Saputra, Dony, Nelvira Djiu, and Nicole Victoria Kong. 2023. 'The Effect of Technological Capabilities and Social Media Usage on Export Performance with Competitive Advantage as Intervening Variable on SMEs in Indonesia'. In *2023 International Seminar on Application for Technology of Information and Communication: Smart Technology Based on Industry 4.0: A New Way of Recovery from Global Pandemic and Global Economic Crisis, ISemantic 2023*. https://doi.org/10.1109/iSemantic59612.2023.10295292.

[35] Mahesh, Sharma, and Sreeramana Aihtal. 2022. 'Impact of Sustainable Finance on MSMEs and Other Companies to Promote Green Growth and Sustainable Development'. *International Journal of Applied Engineering and Management Letters* 6 (1): 60–76. https://doi.org/10.47992/ijaeml.2581.7000.0120.

[36] Salim, M. N., Abd Rahman, N. H., Susilastuti, D., Wibowo, E. W., Marlapa, E., & Abd Samad, K. (2024). Application of MSME and green economy principles for sustainability in Indonesia and Malaysia. *Tec Empresarial, 19*(1), 146–159. https://doi.org/10.1229/tecempresarialjournal.v19i1.370.

[37] Astadi, Pangarso, Sisilia Kristina, Setyorini Retno, Peranginangin Yahya, and Awirya Agni Alam. 2022. 'The Long Path to Achieving Green Economy Performance for Micro Small Medium Enterprise'. *Journal of Innovation and Entrepreneurship* 11 (1): 16.

The green economy promotes business practices that support environmental sustainability while generating economic and social benefits.[38] The green economy can reduce waste and pollution, improve resources efficiency, enhance competitiveness, create market opportunities, and support job creation among MSMEs.[39] For practices to be able to increase the competitiveness of MSMEs and be fair and inclusive, they need to be supported by sustainable financial strategies, environmentally-friendly innovation, skills, and competencies.[40] From a normative point of view, the investment climate for MSMEs towards a green economy experiences many obstacles, including limited capital, gaps in access to financial institutions, and weak management of MSMEs.[41] On the basis of the discussion, the second hypothesis is presented as follows:

H_2: The implementation of the green economy is associated with the sustainability of export-based MSMEs in Indonesia

In the Indonesian context as the world's largest Muslim-majority country, the *maqāṣid al-sharīʿah* framework provides a value-based perspective for enhancing MSME sustainability by integrating economic performance with ethical responsibility, social justice, environmental stewardship, and long-term welfare. This framework complements digitalisation and green economy strategies by promoting sustainable business practices that are consistent with Islamic socio-economic principles.

This research employed a quantitative research design to examine the effect of digitalization and green economy practices on MSME sustainability. The unit of analysis was an individual export-based MSME. The research was conducted among export-based MSMEs located in Lampung and West Java Provinces that had implemented digitalization and green economy practices.

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https://doi.org/10.1186/s13731-022-00209-4.

[38] Tarigan, Edi Suranta, and Wisnu Mawardi. 2023. 'Sustainable Finance Strategy for Msmes Toward A Fair And Inclusive Green Economy'. *Migration Letters* 21 (2): 1055–61.

[39] Mondal, Sourav, Saumya Singh, and Himanshu Gupta. 2023. 'Green Entrepreneurship and Digitalisation Enabling the Circular Economy through Sustainable Waste Management - An Exploratory Research of Emerging Economy'. *Journal of Cleaner Production* 422. https://doi.org/10.1016/j.jclepro.2023.138433.

[40] Singh, Manvendra Pratap, Arpita Chakraborty, and Mousumi Roy. 2016. 'The Link among Innovation Drivers, Green Innovation and Business Performance: Empirical Evidence from a Developing Economy'. *World Review of Science, Technology and Sustainable Development* 12 (4): 316–34. https://doi.org/10.1504/WRSTSD.2016.082191.

[41] Suparji. (2021). Investment climate for MSMEs towards a green economy. *International Journal of Research in Business and Social Science, 10*(6), 153–158. https://doi.org/10.20525/ijrbs.v10i6.1360.

Data were collected through structured questionnaries during the research period. The population comprised 51 MSMEs. Purposive sampling was applied based on predetermined criteria. After screening the population against these criteria and excluding MSMEs that did not meet the requirements or provided incomplete responses, 36 MSMEs remained eligible for analysis. Thus, the final sample consisted of 36 MSMEs, representing the observations that satisfied the sampling criteria and provided complete data for the research. Data were analysed using multiple linear regression to examine the effects of digitalisation and green economy practices on MSME sustainability.

The questionnaire consisted of indicators measuring digitalization, green economy practices, and MSME sustainability. The indicators were adapted from established measures reported in previous research and operationalized using a structured response scale. The questionnaire was administered to the selected MSMEs to obtain primary data for each research variable. Prior to data collection, the questionnaire items were reviewed for clarity, relevance, and alignment with operational definitions of the research variables. The collected data were analysed using multiple linear regression to examine the effects of digitalization and green economy practices on MSME sustainability. The analysis was conducted using the final dataset comprising 36 MSMEs. The regression model was used to assess the direction and significance of the relationships between the independent variables and MSME sustainability.

Discussion

Before testing the hypotheses, the researchers evaluated the regression assumptions. The normality statistical test was performed using the One-Sample Kolmogorov-Smirnov Z (K-S) using MSME sustainability as the dependent variable. The test did not indicate a significant departure of the residuals from normality (p=0.930). The results of the normality test using One-Sample Kolmogorov Smirnov are shown in Table 1.

Table 1: One-Sample Kolmogorov-Smirnov Test

	Unstandardised Residual
N	36
Asymptotic Significance(2-tailed)	.930

Note: The test distribution is Normal
Data Source: SPSS25 Output

Following the data screening and assumption testing, multiple linear regression analysis was conducted to examine the effects of digitalisation and green economy practices on MSME sustainability.

Table 2: Hypothesis Testing Result

Variable	Coefficient	T	Sig.	Result
C	7.152	0.604	0.550	
X_1 Digitalisation	-0.083	-0.552	0.585	**H_1: *Not supported***
X_2 Green economy practices	0.539	4.801	0.000	**H_2: *Supported***
R-squared: 0.433				
Adjusted R-squared: 0.399				
F-statistic: 12.607				
Sig.: *$p < 0.001$*				

Data Source: SPSS 25 Output

The findings of the multiple linear regression test, as shown in Table 2, indicate that the digitalisation was not statistically significantly associated with MSME sustainability. This suggests that H_1 is not supported. The 'green economy'variable has a substantial impact on the MSME sustainability. This indicates that H_2 is supported.

Application of digitalisation on the sustainability of export-based MSMEs in Indonesia

The first finding shows that deploying digitalisation was not statistically significantly associated with MSME sustainability of export-based MSMEs after the pandemic. The regression test results reveal that the significance value is more than 0.05 (0.585 > 0.05). Most micro and small enterprises lack the resources to fully realize the potential of digital technology, which influences this research.[42] The respondents' profiles indicate differences in educational attainment among the MSME owners.[43] However, educational attainment should be distinguished from digital literacy, as a lower level of formal education

[42] Fanelli, Rosa Maria. 2021. 'Barriers to Adopting New Technologies within Rural Small and Medium Enterprises (SMEs)'. *Social Sciences* 10 (11). https://doi.org/10.3390/socsci10110430.

[43] Shaikh, D. A. A., M. A. Kumar, D. A. A. Syed, and M. Z. Shaikh. 2021. 'A Two-Decade Literature Review on Challenges Faced by SMEs in Technology Adoption'. *Academy of Marketing Studies Journal* 25 (3): 1–13.

does not necessarily imply limited digital literacy or digital adoption.[44] Therefore, any relationship between respondents' educational background and their ability to implement digitalisation practices should be interpreted cautiously and requires further empirical evidence. In addition, inadequate infrastructure, limited access to financing, and weak collaboration with external stakeholders reduce the effectiveness of digitalisation in supporting MSME sustainability.[45] Digitalisation of businesses increases the prospects of MSMEs in having access to consumers.[46] The challenges of digital adoption, especially in the infrastructural sector, can cause the implementation of digitalisation in MSMEs to be less optimal such that it does not have an impact on the sustainability of MSMEs.[47]

Implementation of a green economy for the sustainability of export-based MSMEs in Indonesia

Based on the results of the regression test that has been carried out, the significance value of 0.000 <0.05, and the regression coefficient value of the green economy implementation variable is 0.539.[48] This shows that the implementation of a green economy has a positive influence on the sustainability of export-based MSMEs after the pandemic. [49] MSMEs are an important part of building economic resilience; but to be more efficient and have more impact as shown in previous literature, business actors should also be focusing on the

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[44] Umar, Fadhil, M. Rivaldi Ali Septian, and Dwika Ananda Agustina Pertiwi. 2024. 'Effect of Digitalisation on Business Performance in the MSME Industry Context'. *Journal of Information System Exploration and Research* 2 (1): 1–10. https://doi.org/10.52465/joiser.v2i1.199.

[45] Radicic, Dragana, and Saša Petković. 2023. 'Impact of Digitalisation on Technological Innovations in Small and Medium-Sized Enterprises (SMEs)'. *Technological Forecasting and Social Change* 191. https://doi.org/10.1016/j.techfore.2023.122474.

[46] Kádárová, Jaroslava, Laura Lachvajderová, and Dominika Sukopová. 2023. 'Impact of Digitalisation on SME Performance of the EU27: Panel Data Analysis'. *Sustainability (Switzerland)* 15 (13). https://doi.org/10.3390/su15139973.

[47] Almaududi Ausat, Abu Muna, and Suherlan Suherlan. 2021. 'Obstacles and Solutions of MSMEs in Electronic Commerce during Covid-19 Pandemic: Evidence from Indonesia'. *BASKARA : Journal of Business and Entrepreneurship* 4 (1): 11. https://doi.org/10.54268/baskara.v4i1.10318.

[48] Mahesh, Sharma, and Sreeramana Aihtal. 2022. 'Impact of Sustainable Finance on MSMEs and Other Companies to Promote Green Growth and Sustainable Development'. *International Journal of Applied Engineering and Management Letters* 6 (1): 60–76. https://doi.org/10.47992/ijaeml.2581.7000.0120.

[49] Salim, M. N., Abd Rahman, N. H., Susilastuti, D., Wibowo, E. W., Marlapa, E., & Abd Samad, K. (2024). Application of MSME and green economy principles for sustainability in Indonesia and Malaysia. *Tec Empresarial, 19*(1), 146–159. https://doi.org/10.1229/tecempresarialjournal.v19i1.370.

green concept to align with the environmental sustainability concept which has grown in importance in today's world.[50]

Previous literature shows evidence of green economic practices that have significantly impacted the sustainability of MSMEs in developing countries such as Indonesia and Malaysia.[51] The findings indicate that the implementation of green economy practices is positively associated with MSME sustainability. For export-based MSMEs, the adoption of sustainable practices may contribute to a stronger sustainability orientation and potentially support their ability to respond to market expectations.[52] However, this research does not directly measure export sales value, consumer interest, or stakeholder trust; therefore, these mechanisms should be interpreted as possible explanations rather than effects established by the empirical results.

The findings indicate that the concept of management and responsibility can influence the sustainability of MSME businesses consistent with entity theory and legitimacy theory which connects MSMEs with entity owners and also with regulations regarding sustainability procedures.[53] These findings extend previous studies by demonstrating that green economy implementation shows a stronger relationship with MSME sustainability. This suggests that environmental commitment constitutes a more immediate strategic capability for export-based MSMEs in developing economies. [54] Although digitalisation expands market access, its contribution to sustainability depends on organisational readiness. [55] In contrast, green economy practices are positively

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[50] Triandarto, Farid, and Slamet Riyadi. 2024. 'The Role of Downstreaming the MSME Industry and the Green Economy in Supporting National Economic Growth'. *South Asian Journal of Social Studies and Economics* 21 (2): 1–14. https://doi.org/10.9734/SAJSSE/2024/v21i2769.

[51] Salim, M. N., Abd Rahman, N. H., Susilastuti, D., Wibowo, E. W., Marlapa, E., & Abd Samad, K. (2024). Application of MSME and green economy principles for sustainability in Indonesia and Malaysia. *Tec Empresarial, 19*(1), 146–159. https://doi.org/10.1229/tecempresarialjournal.v19i1.370.

[52] Astadi, Pangarso, Sisilia Kristina, Setyorini Retno, Peranginangin Yahya, and Awirya Agni Alam. 2022. 'The Long Path to Achieving Green Economy Performance for Micro Small Medium Enterprise'. *Journal of Innovation and Entrepreneurship* 11 (1): 16. https://doi.org/10.1186/s13731-022-00209-4.

[53] Kaya, Devrimi, and Maximilian Koch. 2015. 'Countries Adoption of the International Financial Reporting Standard for Small and Medium-Sized Entities (IFRS for SMEs) - Early Empirical Evidence'. *Accounting and Business Research* 45 (1): 93–120. https://doi.org/10.1080/00014788.2014.969188.

[54] Crossley, Richard M., Mohamed H. Elmagrhi, and Collins G. Ntim. 2021. 'Sustainability and Legitimacy Theory: The Case of Sustainable Social and Environmental Practices of Small and Medium-Sized Enterprises'. *Business Strategy and the Environment* 30 (8): 3740–62. https://doi.org/10.1002/bse.2837.

[55] Jamil, Nurul Nazlia, and Siti Nur Ayuni Rusli. 2021. 'Malaysian Private Entity

associated with MSME sustainability through efficient resource management and environmental commitment.

Maqāṣid al-sharīʿah Interpretation of Digitalisation, Green Economy Practices, and MSME Sustainability

The empirical findings require a distinction between business sustainability and the attainment of *maqāṣid al-sharīʿah*. The positive association between green economy practices and MSME sustainability indicates a relationship within the estimated model; it does not establish that the enterprises have fulfilled the objectives of Islamic law. Likewise, the statistically non-significant digitalisation coefficient does not demonstrate that digital technologies lack ethical or social value. In this research, maqāṣid operates as a normative framework for interpreting the findings rather than as a variable measured through the questionnaire. Its contribution lies in examining whether business practices protect legitimate interests and promote welfare beyond enterprise continuity.

This interpretation begins with the distinction between objectives (maqāṣid) and instruments (wasāʾil). Laldin and Furqani identify wealth circulation, fair and transparent financial practices, and justice as objectives that should guide the instruments employed in Islamic finance.[56] Applied to the present context, digitalisation and green economy practices can be understood as instruments whose normative value depends on their implementation and consequences. The adoption of a digital platform or an environmentally labelled production process does not automatically demonstrate the achievement of maṣlaḥah. Evaluation must also consider who benefits, who bears the costs, and whether the practices prevent or generate harm.

From the perspective of protecting life (ḥifẓ al-nafs), environmentally responsible production is relevant when it safeguards the health and safety of workers, consumers, and surrounding communities. The prohibition of corruption on earth in Qur'an 7:56 provides a general normative basis for scrutinising destructive economic conduct. In the MSME context, this principle supports attention to waste disposal, hazardous production processes, and the protection of essential resources. However, the reported regression does not directly measure pollution reduction, occupational safety, or community health. The finding should therefore be interpreted as compatible with a concern for

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Reporting Standard (MPERS) Implementation for Small and Medium Enterprises (SMEs)'. *Accounting* 7 (3): 615–20. https://doi.org/10.5267/j.ac.2020.12.017.

[56] Laldin, M. A., & Furqani, H. (2013). Developing Islamic finance in the framework of maqasid al-Shari'ah: Understanding the ends (maqasid) and the means (wasa'il). *International Journal of Islamic and Middle Eastern Finance and Management, 6*(4), 278–289. https://doi.org/10.1108/IMEFM-05-2013-0057.

protecting life, while actual attainment requires evidence of environmental and social outcomes.

The protection of wealth (ḥifẓ al-māl) similarly extends the evaluation beyond the financial survival of enterprise owners. Qur'an 4:29 connects legitimate commercial activity with protection against wrongful appropriation and trade based on mutual consent. Building on this principle, the present analysis proposes that sustainability should encompass the protection of legitimate interests throughout business relationships. Resource efficiency may support enterprise continuity, but profitability achieved by transferring environmental costs to neighbouring households cannot be treated as sufficient evidence of welfare. Relevant assessment would need to examine the distribution of benefits and burdens among owners, workers, suppliers, consumers, and affected communities.

Digitalisation also requires evaluation beyond its association with the sustainability score. Digital tools may facilitate commercial communication and access to information, while their use raises questions about transparency, understandable transaction terms, and the protection of customer interests. In this interpretation, digital literacy is relevant to informed decision-making and may be connected to the protection of intellect (ḥifẓ al-ʿaql). Nevertheless, the present findings do not establish respondents' literacy levels or demonstrate that insufficient knowledge explains the non-significant coefficient. These remain possible explanations requiring additional evidence. The normative responsibility to provide accurate information and avoid deceptive practices remains relevant regardless of whether digitalisation produces a statistically significant business advantage.

A further issue concerns the tension between immediate business costs and longer-term public welfare. Environmental improvements may require expenditure that smaller enterprises find difficult to absorb. The interpretation proposed here therefore considers the seriousness of potential harm, the interests affected, available alternatives, and the feasibility of implementation. Preventing a credible threat to human health deserves different consideration from adopting a costly environmental label without demonstrated benefits. Technical assistance, shared waste-management facilities, and accessible financing may help enterprises address this tension, although the effectiveness of these measures is not established by the current research.

This attention to interconnected consequences is consistent with Auda's emphasise on wholeness, multidimensionality, and purposefulness in maqāṣid-

based reasoning.[57] It also permits consideration of future generations where current production threatens the resources on which subsequent livelihoods depend. However, the analysis does not assume that all five fundamental objectives have been measured or fulfilled. Protection of progeny (ḥifẓ al-nasl) remains an intergenerational concern, while preservation of religion (ḥifẓ al-dīn) cannot be inferred from the enterprises' location in a Muslim-majority country or from their reported financial outcomes.

The contribution of the maqāṣid perspective is thus to distinguish an observed economic association from a broader judgment about ethically acceptable sustainability. Green economy practices warrant further examination because of their positive association with the measured outcome, while digitalisation requires context-sensitive assessment despite its statistically inconclusive result. Neither finding is sufficient to establish the attainment of maqāṣid. Such an assessment requires evidence concerning actual benefits, avoided harms, transparency, and the distribution of consequences beyond the enterprise itself.

Conclusion

This research finds that digitalisation is not statistically significantly associated with the sustainability of the sampled export-based MSMEs in Lampung and West Java, whereas green economy practices show a positive association within the estimated regression model. These findings should be understood in relation to the sample and variables examined. They neither establish causal relationships nor demonstrate that digitalisation has no practical value. Explanations involving digital literacy, infrastructure, or organisational readiness remain propositions for further investigation rather than mechanisms verified by the present analysis.

The *maqāṣid al-sharīʿah* interpretation extends the discussion by distinguishing enterprise continuity from the broader protection of life, legitimate wealth, and public welfare. Digitalisation and green economy practices constitute instruments whose normative significance depends on their implementation, consequences, and distribution of benefits and burdens. Accordingly, favourable business outcomes alone are insufficient to establish the attainment of maqāṣid. The research's contribution lies in connecting the empirical findings with explicit criteria for normative evaluation while

[57] Auda, J. (2008). *Maqasid al-Shariah as philosophy of Islamic law: A systems approach*. International Institute of Islamic Thought.

maintaining the distinction between statistical evidence and ethical interpretation.

The findings suggest that MSME support programmes should consider environmental practices alongside context-sensitive digital capability development. Environmental initiatives require assessment through verifiable improvements, while digital adoption should be accompanied by attention to transparency, informed participation, and the protection of stakeholder interests. These implications constitute directions for programme design and evaluation rather than interventions whose effectiveness has been demonstrated by this research.

Purposive sampling, limited geographical coverage, and the observational design constrain the generalisability and causal interpretation of the results. Future research should employ clearly specified and validated measures, broader samples, and longitudinal or mixed-methods designs to investigate the mechanisms underlying the observed associations. Evidence from workers, consumers, and surrounding communities would also strengthen the assessment of whether enterprise sustainability generates wider welfare consistent with *maqāṣid al-sharīʿah*.

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