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Drivers of Green Economic Performance in Vietnam: The Interplay of Digitalisation, Green Finance, and Institutional Quality

Trang Nguyen Thi Thu

Faculty of Banking, Ho Chi Minh University of Banking (HUB), Ho Chi Minh City, 84, Vietnam
Email: trangntt@hub.edu.vn; https://orcid.org/0009-0002-2952-2032

Abstract

Background: The green economy is an essential trend for nations seeking to achieve economic growth while maintaining environmental sustainability. However, as this remains a relatively nascent issue in Vietnam, raising awareness of the green economy and its role in sustainable development is vital at this stage.

Objective: This study aims to explore the determinants of green economic performance and emphasise the moderating role of institutional quality. Furthermore, it integrates technological, financial, and institutional perspectives to provide an empirical basis for policy design in the Vietnamese emerging economy.

Methodology: The research utilised a mixed-methods design. In the qualitative phase, 30 experts from government, academia, and business were interviewed to refine constructs relevant to Vietnam's green transition. In the quantitative phase, 666 valid responses were collected over a five-month period in 2025 from business managers across five major cities.

Results: The findings indicate that green economic performance is strongly influenced by digitalisation, green technology, green innovation, and green financing. While green technology demonstrates the most significant immediate effect, green financing plays a crucial role in raising awareness of the circular economy and in promoting the adoption of renewable energy sources.

Conclusion: A green economy successfully combines economic growth with environmental protection while minimising the negative impact on natural resources. The study presents a scientific rationale for a strategic direction that enables Vietnam to achieve its dual goals of economic development and environmental preservation.

Unique Contribution: This study offers theoretical insights and empirical evidence regarding the moderating influence of institutional quality. It demonstrates that a green economy is not

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only a mechanism for environmental protection but also a driver of economic growth and improved quality of life.

Key Recommendations: The government should recognize that green growth facilitates economic restructuring driven by innovation-led models. To achieve economic prosperity, environmental sustainability, and social equity, the author proposes effective governance measures grounded in these findings, including specialized green finance mechanisms and robust innovation incentives.

Keywords*:* Green economy, green innovation, finance, digitalization, institutional quality.

Introduction

Governments that emphasize environmental protection, social justice, and sustainable development should implement green economies worldwide. For climate neutrality, equitable growth, and sustainable development, industrialized and developing nations must implement a green economy immediately. A "green economy" (Zhang, 2021) emphasizes social inclusion, carbon reduction, and resource efficiency, unlike "grow now, clean later" economic development. Khan et al. (2024) suggest a comprehensive green economy target in national development policy. Vietnam and other developing nations can remain competitive through a green economy, given the industrialization and environmental challenges they face.

Recent advancements reveal that green, digital, and financial technology are changing economies worldwide. Digitalization enables energy conservation, data-driven decision-making, and real-time environmental monitoring. Green project finance boosts sustainability and productivity (Luo et al., 2023) without compromising quality. Recycling is essential to the circular economy, which is green manufacturing with waste decreases. Medium- and long-term growth planning promotes cross-sector cooperation. Despite global interest in green economics, little is known about how these variables affect the green economies of developing nations (Peng et al., 2023). Several international institutions and states encourage sustainable development and its green economic model to balance population growth, environmental conservation, and social justice (Fernández et al., 2021). A bold plan to combat climate change, boost competitiveness, and create green jobs, says it generates new growth model concepts.

For this subject, Vietnam is used to simulate reality. National institutions, technology acceptability, and policy coordination are lacking despite renewable energy, green initiatives, and circular economy regulations. Resource constraints prevent many companies from implementing green programs. For a green economy, scholars and policymakers must grasp digitization, new ideas, money, and institutions. Vietnam's green measures are making the economy more sustainable. Important to study other nations' actions.

This study creates and tests a model that accounts for technological (innovation, digitization, and green technology), financial (green financing), and institutional (institutional quality) green economic factors. SmartPLS-SEM polled many managers in Vietnam's key service and manufacturing sectors. Digitalization and green funding are essential for technology, circular practices, and innovation. However, institutional quality might benefit or harm depending on the trajectory.

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This study added three crucial elements: a complete model linking green economy outcomes to IT, monetary policy, the web, and established institutions. The second study confirms the previously unknown stabilizing effect of institutional quality. Finally, the insights allow policymakers to create technical incentives and restrictions to encourage innovation-driven economic growth. Therefore, this study examines the critical elements that influence the green economy, with a focus on the role of institutional quality in moderating the relationship between the circular and green economies.

Theoretical Framework and Hypotheses Development

Many people's conceptions of a "green economy" are all over the map right now. Conversely, a green economy makes efficient use of natural resources while reducing waste and other negative environmental impacts. The study highlights the importance of state management in these areas, which improves resilience to climate change and other natural disasters (Khan et al., 2024; Tufail et al., 2024). According to other research, the green economy is a low-carbon economy that safeguards the environment and prevents the depletion of natural resources. The expansion of the economy in a way that maintains a clean and safe environment for people is the primary objective. Sustainable green economic growth is currently an unstoppable global trend.

Improvements in efficiency and effectiveness through the use of digital technology are known as digitalisation, or DIG. Many people have different interpretations of this at the moment. Environmental protection is only one of several benefits of the green transition (Bhattacharyya, 2022). Reducing emissions and pollution and making better use of resources also help the firm expand.

Both digital transformation and the green economy are significant shifts that, when combined, can help the economy grow sustainably, reduce pollution, and make better use of resources (Martawardaya et al., 2022; Luo et al., 2023). Businesses also have the resources to streamline operations, reduce waste, and increase productivity when they adopt digital technologies. A new digital tool is being developed within the green economy to help address environmental challenges (Xu et al., 2023; Wang et al., 2024). Figure 1 (H1) presents the author's theory: digitalisation is beneficial to the green economy.

Sustainable development also includes the green economy. An approach to economic growth known as the "green economy" aims to reduce environmental hazards and resource shortages while also supporting long-term economic growth (Lin et al., 2023; Peng et al., 2023). Digitalization helps spread green technology and innovation by making it easier to collaborate on R&D projects and to integrate processes digitally. In Figure 1, we can observe the author's working hypotheses: H2: Digitalization positively impacts green innovation, and H4: Green innovation influences the green economy.

Regarding green technology (GT), there are many competing ideas about its proper application at present. What about new models of economic growth, such as the sharing economy, green economy, or circular economy (Qiu et al., 2023; Guo et al., 2024). Another option is green

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technology, which benefits the environment. Further evidence suggests that digital technology can help achieve objectives related to new forms of economic growth, such as the sharing, green, and circular economies. Achieving the Net Zero objective is a component of the green transformation process.

The author proposed H3: Digitalisation is beneficial for green technology, as evidenced above. Not only are green technologies beneficial for the environment, but they also help save energy. However, green growth measures are more effective when these technologies are used (Meiling et al., 2020). In Figure 1, the author put H5 - the effect of green technology on the green economy.

Green finance (GF): At the moment, many people have different ideas about what green finance is. People consider it a key way for a country to grow in a way that is environmentally sustainable and durable. Another study found that for the green financial industry to grow, both the green capital and credit markets must expand simultaneously (Desalegn & Tangl, 2022). Green credit lines and sustainability-linked loans reduce financing costs for recycling and clean energy projects, thereby supporting the circular economy and the uptake of renewable energy. Green capital markets fund renewable infrastructure for the long term, enabling large-scale circular and sustainable energy practices. In Figure 1, the author proposes H7, which states that green finance supports the circular economy, and H8, which states that green finance facilitates the adoption of renewable energy.

The use of renewable energy (REA): There are many ways to use REA in the green economy today. Some of these ideas aim to protect the environment and reduce pollution, as well as to create long-term job opportunities. Other research has shown that solar, wind, and hydroelectric power can be used in many areas, including homes, businesses, farms, transportation, and education and research (Ozturk et al., 2022).

Also, due to climate change and resource depletion, a new economic movement, the "green economy" (Chioatto & Sospiro, 2023), has emerged. In order to meet the goal of sustainable development based on a low-carbon or green economy (Sohag et al., 2021). Other studies have said that countries need to invest in and use new renewable energy sources. As you can see, these come from wind, solar, geothermal, and bioenergy sources. Going green means using less carbon and fossil fuels and more sustainable energy sources. In Figure 1, the author wrote H9: Using renewable energy is good for the green economy.

The circular economy reduces material waste and enhances resource efficiency, thereby reducing emissions. Fernández et al. (2025) say it does this by encouraging recycling, reusing, and prolonging product life (Navarro et al., 2024; Chioatto & Sospiro, 2023; Dzhengiz et al., 2023; Benítez-Silva, 2024). The author presented hypothesis H10, which posits that the circular economy supports the green economy. The author proposed the hypothesis (H11) that institutional quality positively affects the link between green technologies and the green economy. The link between the circular economy and the green economy in Figure 1 is weakened by the strength of the institutions that hold it together.

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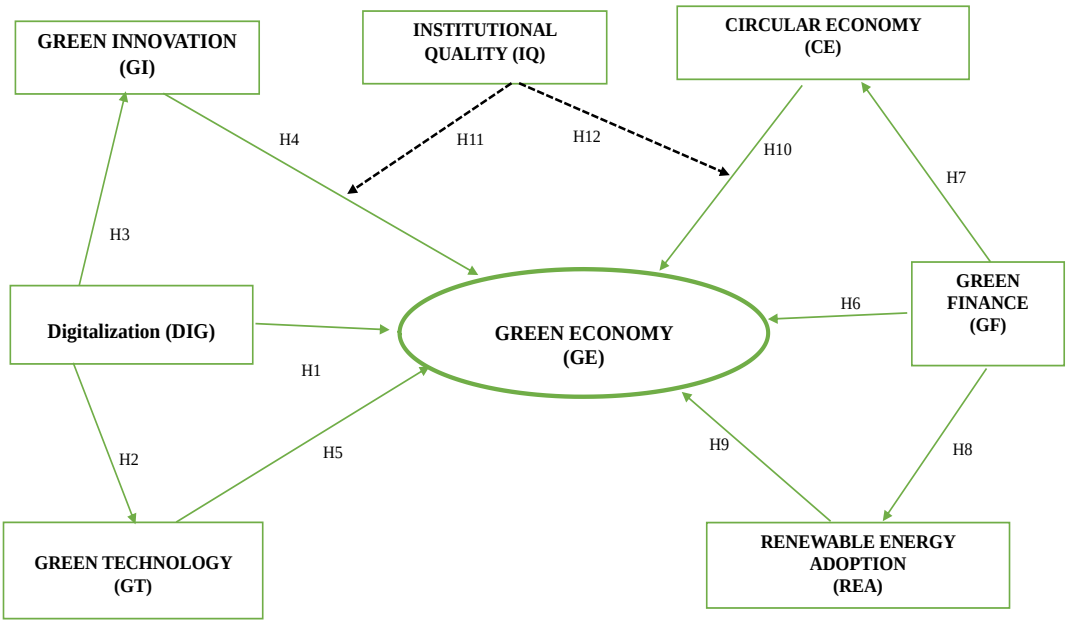
The majority of green economic development studies in emerging economies focus on single factors, such as technological adoption, financial incentives, or institutional regulation. This study integrates three complementary approaches: policy integration through digitalization and institutional quality; market incentives through green finance and innovation; and regulatory frameworks that drive circular and renewable practices. Thus, the proposed model captures systemic interactions that drive green economic results.



Source: The author proposed the model

Figure 1: ***A research model for key factors influencing the green economy***

The conceptual framework for the green economy in Vietnam is shown in Figure 1. It combines digital, financial, technological, and institutional factors into a single, coherent model. The model also showed that the green economy is affected by six key factors. In Vietnam, however, the link between the circular and green economies is not as strong as it could be because of the strength of the institutions that support them. Figure 1 was used to guide the study and analysis that led to the predictions being tested.

Research Methods

According to the author, the study was conducted in two steps. To test the model's hypothesis, he conducted both a formal quantitative survey of 700 managers and a qualitative study with 30 experts.

Qualitative phase based on conversations with experts

First, the author recommended that this part of the research use a qualitative, exploratory method to ensure that the proposed framework for the green economy is a clear concept and makes sense in its context.

Second, between January and March 2025, 30 professionals from business, government, and education were interviewed using a semi-structured interview guide. A purposive sampling method was also used to select the experts, with a focus on those with extensive experience in environmental management, digital transformation, renewable energy, green finance, and

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policy-making in Vietnam. Finally, participants may choose to meet in person or participate online for 45 to 60 minutes per discussion (Hair et al., 2019).

Third, the semi-structured interviews with 30 experts were analysed thematically in the qualitative phase to enhance content validity and contextual relevance. Interview transcripts were coded to identify topics on green financing, digitalisation, institutional quality, and green innovation in Vietnam. This analysis improved the cultural appropriateness of the measurement scales and construct validity by refining item wording, removing ambiguous indicators, and adding context-specific expressions that reflect Vietnam's regulatory and economic environment.

The next step in the study process determines the quantitative phase

Following the qualitative investigation, the second part employed a quantitative survey and SmartPLS-SEM to test the hypotheses in an experimental setting. After obtaining the final measurement scales from other sources and consulting experts, the poll tool was developed (Hair et al., 2019). A five-point Likert scale was used to rate each category. One point meant "Strongly Disagree," and five points meant "Strongly Agree."

Sampling and participants - The intended recipients were managers and experts working in five of Vietnam's most significant cities: Hanoi, Ho Chi Minh City, Da Nang, Binh Duong, and Hai Phong. They worked in companies that manufactured products, provided services, managed logistics, used energy, or protected the environment. These cities were selected because they are the most digitally advanced in the country, adopt green technologies, and prioritise environmental protection (Hair et al., 2019).

Between April and June 2025, 700 surveys were mailed and emailed to people. A purposive and snowball sampling approach was used to identify respondents with at least 3 years of professional experience in environmental governance, technology operations, sustainability management, or finance. Of the 700 surveys sent, 666 were valid, representing 95.1% of the total. This exceeds the minimum number of responses required for PLS-SEM analysis.

The internal consistency was more reliable than the 0.70 critical value, as indicated by both the composite reliability test and Cronbach's Alpha. Convergent validity was established because the average variance extracted across all categories exceeded 0.50. Fornell-Larcker and HTMT criteria for discriminant validity were met. This study found no primary concern about collinearity when VIF values (<3.0 or <5.0) were used to detect it.

To assess the importance of a link in the model, we will use the t-test statistic or the p-value. The p-value is often more useful for decision-making. The model also gives the p-value significant weight. Rather than removing one of the factors, Hair et al. (2019) found that the link was not statistically significant and therefore retained both in the model. For bootstrapping, 5.000 subsamples were used. Some model fit measures we used were SRMR, R^2, and Q^2. These indicate how well the model explained and predicted the data. Ultimately, the quantitative phase generated substantial real-world data that supported the proposed connections among digitalisation, green finance, green technology, green innovation, the circular economy, renewable energy use, and institutional quality. With 666 valid observations, the sample had

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sufficient statistical power and external validity to draw broad conclusions about the drivers of the green economy in Vietnam's growing industrial landscape.

Results

Data on the demographics of responders based on the sample

The 600 replies we received were genuine and came from managers and professionals in Hanoi, Ho Chi Minh City, Da Nang, Binh Duong, and Hai Phong. The demographic information for the respondents to the poll is presented below. 39.2% of those who answered were men (n = 261) and 60.8% were women (n = 405). This indicates that an increasing number of women are employed in Vietnamese businesses as managers and in environmental roles. 63.5% of participants were married, and 36.5% were single. This means that the workforce is stable and developed. 35.1% were between the ages of 35 and 45, 11.4% were between the ages of 25 and 35, and 2.3% were younger than 25. Because it covers people of different genders, job types, and lengths of service, the data is more accurate and more representative of real life. For the next part of the study, this is important.

Testing critical factors influencing the green economy

Table 1: ***Testing of Std. Deviation for factors influencing the green economy***

Items	Code	Min	Max	Mean	Std. Deviation
Digitalization (DIG)	DIG1–DIG4	1	5	3.152	0.903
Green technology (GT)	GT1–GT4	1	5	3.310	0.925
Green innovation (GI)	GI1–GI4	1	5	3.094	0.923
Green finance (GF)	GF1–GF4	1	5	3.415	0.925
Circular economy (CE)	CE1–CE4	1	5	3.225	0.912
Renewable energy adoption (REA)	REA1–REA4	1	5	3.319	0.928
Institutional quality (IQ	IQ1–IQ4	1	5	3.355	0.941
Green economy (GE)	GE1–GE4	1	5	3.084	0.902

Source: own calculations in SmartPLS 4.0.

Table 1 shows that the factors with the highest mean values were institutional quality (M = 3.355, SD = 0.941) and green finance (M = 3.415, SD = 0.925). This indicates that most respondents preferred the financial tools and systems that support their work. The means for green economy results (M = 3.084, SD = 0.902) and green innovation (M = 3.094, SD = 0.923) were lower, indicating that many businesses are still in the early stages of transitioning to a fully green economy. The descriptive analysis identifies promising green practices. This provides a solid foundation for the following PLS-SEM study. The high mean values for green finance and institutional quality indicate a managerial consensus that financial incentives and regulatory clarity are the most critical enablers of green economic activities. Managers appear to prioritise access to green funding and stable institutions as practical tools to overcome resource constraints and implementation risks.

Table 2: ***Testing composite reliability for factors influencing the green economy***

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Code	Cronbach's alpha	Composite reliability	Composite reliability	Average variance extracted
CE	0.967	0.967	0.976	0.910
DIG	0.963	0.963	0.973	0.900
GE	0.986	0.986	0.989	0.958
GF	0.966	0.966	0.975	0.907
GI	0.966	0.966	0.975	0.907
GT	0.984	0.984	0.988	0.955
IQ	0.734	0.755	0.821	0.545
REA	0.971	0.971	0.979	0.920

Source: own calculations in SmartPLS 4.0.

Table 2 shows that all models meet the basic requirements for convergent validity and internal consistency. High dependability and convergent validity have been confirmed. These were the Cronbach's Alpha scores: 0.734 to 0.986, and the Composite Reliability scores: 0.821 to 0.989. This shows that the tests were pretty much the same every time. The AVE values for technology, business, and innovation were all above 0.90, indicating they are very similar. The indices for institutional quality were lower than those for the other constructs (± = 0.734; AVE = 0.545), but they are still higher than what is considered reasonable. For an exploratory study, this means that the construct is valid and convergent. The main finding is that all test items correctly reflect the hidden concepts they are intended to measure, and the model meets the requirements to proceed to structural-model testing.

Table 3: ***Testing factors influencing the green economy***

Code	Path Effects				
	Original sample	Sample mean	Standard deviation	T statistics	P values
CE → GE	0.130	0.131	0.051	2.544	0.011
DIG → GE	0.165	0.164	0.050	3.276	0.001
DIG → GI	0.966	0.966	0.003	367.410	0.000
DIG → GT	0.875	0.874	0.016	54.178	0.000
GF → CE	0.970	0.970	0.002	452.015	0.000
GF → GE	0.103	0.104	0.047	2.196	0.028
GF → REA	0.968	0.968	0.003	378.787	0.000
GI → GE	0.111	0.116	0.053	2.099	0.036
GT → GE	0.390	0.383	0.060	6.542	0.000
IQ x CE → GE	-0.159	-0.124	0.063	2.527	0.012
IQ x GT → GE	0.147	0.114	0.061	2.409	0.016
REA → GE	0.108	0.107	0.045	2.413	0.016

Source: own calculations in SmartPLS 4.0.

Table 3 shows that the suggested study model testing is supported by substantial real-world evidence. Moreover, the results show that digitalisation (DIG), green technology (GT), green finance (GF), and circular economy (CE) have a significant impact on Vietnam's green economic growth (GE), with a notable increase of 5%.

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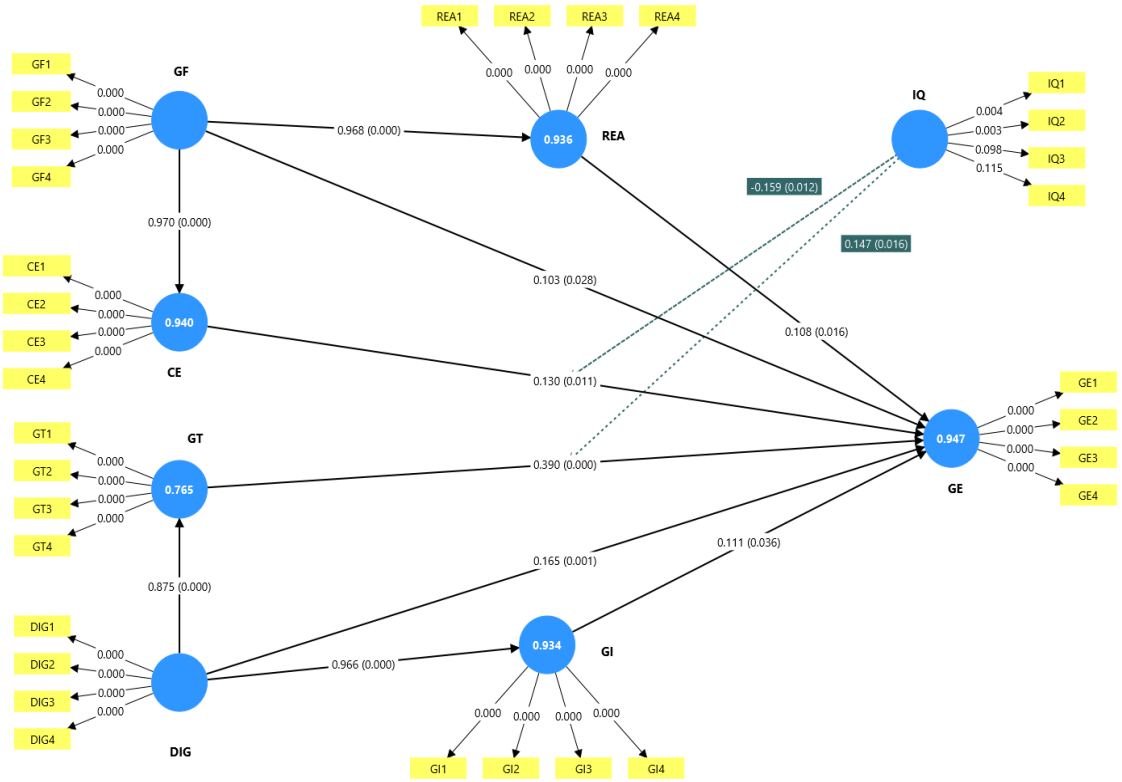

Source: own calculations in SmartPLS 4.0.

Figure 2: ***Testing SEM for factors influencing the green economy***

Figure 2 outlines the main parts of Vietnam's green economy. Digitization, green technology, green innovation, circular economy, green financing, renewable energy consumption, and institutional quality are included. Green economic development (GE) has significant explanatory power ($R^2 = 0.947$), accounting for 94.7% of the variation in the green economy.

Discussion of Findings

Based on model testing, the digital infrastructure was rapidly implemented in Vietnam, enabling businesses not only to reduce energy consumption and increase production efficiency but also to manage their resources better. Direct benefits are much smaller than secondary ones. In other words, digital transformation is most effective when it is embedded in innovative communities and technology diffusion, rather than as individual projects focused on green innovation and technology.

Digitalisation and Green Innovation have a substantial path coefficient, suggesting a near-immediate dependency rather than a causal relationship. Digital monitoring systems, data-driven process optimisation, and innovative production platforms promote green innovation in Vietnam. Because many green innovation methods are inseparable from digital infrastructure, structural proximity explains near-collinearity. The finding shows that digitization is the foundation of green innovation in emerging economies, not measurement overlap.

Green technology had a significant impact on green economic outcomes, demonstrating its importance for carbon reduction and resource efficiency. New technologies make companies more productive and environmentally sustainable (Luo et al., 2023; Peng, 2023). Green

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invention was important but less significant than the blue invention. This means Vietnamese enterprises are starting to innovate. However, they cannot reach their full potential because they do not invest enough in R&D and because businesses and colleges do not collaborate enough. To ensure that digitalisation yields long-term production capacity, policymakers must focus on innovation. What role does green finance have? Green financing indirectly supports the circular economy, renewable energy, and the growth of the green economy. This suggests that financial tools help long-term enterprises flourish.

Sustainability-related green credit lines and loans are growing in Vietnam. Businesses may fund cleaner technology and renewable initiatives. Many companies do not invest in long-term green initiatives because they perceive them as too risky and lack sufficient institutional experience with ESG-based assessments (Desalegn & Tangl, 2022). Thus, strengthening green banking norms and benefits could enhance the financial system's role in green growth.

The circular economy and sustainable energy were found to have significant effects on green economic growth. Circular production and the transition to renewable energy are important strategies for reducing carbon emissions and our reliance on natural resources (Fernández et al., 2025; Chioatto & Sospiro, 2023), as shown by earlier studies. However, the coefficients are relatively low, indicating that implementation remains in the pilot or early-adopter stage and is primarily occurring in larger companies or those backed by other countries. To increase the number of people who undertake these actions, we will need fiscal policies that support them, market-based incentives, and national environmental goals that incorporate circularity principles.

Institutional quality is a double-edged sword: its effects can be both beneficial and harmful, as evidenced by its balancing effects. As in other research, the lack of alignment between the green and circular economies suggests that overly vague or overly strict laws may impede circular innovation (Benítez-Silva, 2024). The adverse moderating effect of institutional quality shows regulatory frictions in Vietnam's circular economy. Qualitative interviews show that ambiguous waste-classification standards, overlapping administrative procedures, and strict enforcement delay licensing and increase compliance costs. Despite a strong environmental purpose, institutional constraints impede the experimentation and scale-up of circular practices, reducing their contribution to green economic outcomes. Green technology and a green economy can work together; on the other hand. This shows that effective government can enhance the benefits of new technology.

As the study relies on self-reported managerial perceptions, response bias may be present. In particular, the relatively high mean values for institutional quality and green finance may reflect respondents' perceived regulatory compliance or favourable policy expectations rather than purely objective conditions. This limitation should be taken into account when interpreting the results.

Conclusions and Policy Recommendations

Conclusions

Sustainable growth, environmental protection, greenhouse gas reduction, and better living conditions require green economic development. A thorough model examined the fundamental factors of Vietnam's eco-friendly economy. The notion includes digitization, green technology, innovation, circular economy, green financing, renewable energy, and institutional quality. The

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conclusions were based on 666 real responses from management and professionals across five sites. They show the growing complexity of national green growth. Vietnam's green economy relies on digitisation, green technology, and green financing, the study found. Digital revolution technologies and new perspectives enhance sustainability both directly and indirectly. Green funds increased renewable energy and circularity. Green technology greened the economy. Institutional quality linked green tech to the green economy, while rising regulatory costs hampered the circular economy. This indicates that greening extends beyond finance and technology. Government institutions must be well-managed and coordinated. These findings show that Vietnam's green economy needs unified digitisation, green financing, and technology laws. Vietnam can quickly build a strong, innovative, low-carbon economy. Below are the author's significant policy suggestions.

Policy Recommendations

To accelerate Vietnam's transition to an innovative, environmentally sustainable economy, incentive-based legislation, digital transformation, and robust financial institutions are recommended.

(1) Improved digital transition boosts green economic growth directly and indirectly, green technology, and creativity. National green growth goals should embrace digitisation. Spend more on IoT, AI, and blockchain for innovative production, environmental monitoring, and resource tracking. Training, tax incentives, and skill-building help SMEs adopt online technologies. Websites for energy efficiency and green supply chains. These projects blend cutting-edge tech and ideas. This encourages greenery. Digital technologies should transcend businesses. Government, public services, and production should use it more. Growth, worker productivity, and social governance improve. Increase green science and technology, such as smart farming, waste management, renewable energy, and energy efficiency, to boost production and environmental protection. Vietnam should copy other countries' economies and technology. Programmes must help producers adopt the new industrial model. Based on clearly defining and perfecting the functions and tasks of each organisation, deploying the construction of a streamlined political system apparatus that operates effectively and efficiently. Policymakers should promote innovation-oriented digitisation by increasing R&D spending and encouraging collaboration among corporations, universities, and research institutes, as well as by investing in digital infrastructure and training. To enable sustainable green economic growth, digital strategies must move beyond adoption to innovation, given the close link between digitisation and green innovation.

(2) Using greener technology: Green technology dominates green economic outcomes. Long-term change is driven by technological progress. Companies that implement innovative waste management strategies, employ renewable energy sources, and invest in low-carbon industrial equipment should be eligible for targeted subsidies or low-interest loans. New technology can be brought to the area through collaborative research and development (R&D) projects between businesses, universities, and study centers. To foster more innovative thinking across the nation, it is necessary to enhance the protection of intellectual property and the sale of technology. Green innovation needs targeted incentives, such as R&D tax credits and mandated co-funding for university–industry projects, to alleviate its systemic deficit. These techniques would promote knowledge transfer, lower business innovation costs, and boost collaborative research capacity, helping green innovation complement green technology to drive green economic growth.

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(3) Get better at using green finance: Green finance is essential to both the circular economy and renewable energy, and it has a very high path coefficient. To improve outcomes, leaders should work to change the monetary system and put green cash to use. Ensure that all projects eligible for green loans and bonds are treated consistently by implementing a comprehensive green classification and reporting system. Encourage commercial banks to offer loans linked to sustainability and carbon performance measures. Create a National Green Investment Fund to support circular-economy and renewable-energy projects. This fund needs private donations. Businesses should receive tax benefits or cheaper financing rates to pursue more green projects. More government expenditure and budgeting help the environment. Promote participation in multilateral and bilateral relations; participate in global production and value chains, perfect mechanisms, policies, and solutions to effectively implement international treaties and commitments.

(4) Promote green energy and the circular economy: Although their effects are not substantial now, these two items may have significant implications in the future. By 2030, all publicly available web information should be at level 4. Everything will be done online, no paper or meetings. A sustainable digital economy requires data security. As personal, financial, and organisational data grow, cybersecurity becomes more vital. Vietnam must reduce risks and strengthen cyber defences. Technical, legal, and public-awareness initiatives can achieve this. The state should fund clean public transit, green energy, waste treatment, and eco-industrial parks. By issuing green bonds, creating technology innovation funds, and offering tax breaks for green enterprises, this government may engage the private sector. Policymakers could use preferential tax rates, targeted tax credits, and subsidised skill-building programs to address the uneven adoption of circular-economy and renewable-energy practices. These incentives would reduce entry barriers for smaller firms, increasing their involvement in green initiatives and ensuring that green economic change is inclusive rather than concentrated among large or foreign-backed organisations.

(5) Perfecting institutions to promote the industrialization process towards modernization; developing agriculture and rural areas towards modernization, and building and effectively implementing outstanding institutions to promptly receive the development of new production and business methods (being formed and developing rapidly, such as the digital economy, sharing economy, circular economy, blockchain application, etc.) and promoting the development and application of science and technology, exceptionally high technology, new technology, the Fourth Industrial Revolution, applying appropriately and effectively to production, business and other areas of social life. Promote improvements to ownership institutions, including land institutions. Vietnam should incorporate international best practices through collaborative research frameworks, technology transfer agreements, and localized adaptation of proven green technologies rather than directly duplicating other nations' economic and technological models. Such an approach allows global knowledge to be combined with indigenous institutional and industrial conditions, providing a context-specific and sustainable green transition.

Limitations and future research: This study has several limitations. First, the cross-sectional and self-reported data may introduce response bias. Second, the sample focuses on major urban areas, limiting generalizability. Future research should apply longitudinal designs, incorporate objective performance indicators, and extend analysis to SMEs and rural regions to enhance

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robustness and policy relevance. Finally, incorporating data from multiple areas and industries would help ensure that the results apply to a broader range of situations. The model was based on self-reported views, which could have caused response bias. In a later study, objective environmental or financial success metrics could be used to prove that the model is correct. Comparative studies across ASEAN and other developing economies would help us better understand how institutional and financial ecosystems shape global green transitions.

References

Benítez-Silva, H. (2024). Sustainable and green economics as key to building sustainable communities. *Sustainable Communities*, *1*(1), 1–3. https://doi.org/10.1080/29931282.2024.2365219

Bhattacharyya, R. (2022). Green finance for energy transition, climate action and sustainable development: Overview of concepts, applications, implementation and challenges. *Green Finance*, *4*(1), 1–35. https://doi.org/10.3934/GF.2022001

Chioatto, E., & Sospiro, P. (2023). Transition from waste management to circular economy: The European Union roadmap. *Environment, Development and Sustainability*, *25*(1), 249–276. https://doi.org/10.1007/s10668-021-02050-3

Desalegn, G., & Tangl, A. (2022). Enhancing green finance for inclusive green growth: A systematic approach. *Sustainability*, *14*(12), 1–13. https://doi.org/10.3390/su14127416

Dzhengiz, T., Miller, E. M., Ovaska, J. P., & Patala, S. (2023). Unpacking the circular economy: A problematizing review. *International Journal of Management Reviews*, *25*(2), 270–296. https://doi.org/10.1111/ijmr.12329

Fernández, M. del V., Robles, J. M., Tolentino, M., & Andrade, S. M. (2025). Analysis of the degree of implementation of the circular economy in Europe and Spain. *Cogent Business & Management*, *12*(1), 1–22. https://doi.org/10.1080/23311975.2025.2499668

Guo, F., Yang, C., & Feng, S. (2024). The Impact of Digital Economy on Green Technology Innovation and Its Mechanism: Evidence from 274 Cities in China. *Emerging Markets Finance and Trade*, *60*(9), 1971–1985. https://doi.org/10.1080/1540496X.2023.2297925

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Khan, H. H. A., Ahmad, N., Yusof, N. M., & Chowdhury, M. A. M. (2024). Green finance and environmental sustainability: A systematic review and future research avenues. *Environmental Science and Pollution Research International*, *31*(6), 9784–9794. https://doi.org/10.1007/s11356-023-31809-6

Lin, Y., Wang, Q. J., & Zheng, M. Q. (2023). Nexus Among Digital Economy, Green Innovation, and Green Development: Evidence from China. *Emerging Markets Finance and Trade*, *60*(4), 704–723. https://doi.org/10.1080/1540496X.2023.2258260

Luo, S., Yimamu, N., Wu, Y. Li, H., Irfan, M., & Hao, Y. (2023). Digitalization and sustainable development: How could digital economy development improve green innovation in China?. *Business Strategy and the Environment*, *32*(4), 1847–1871. https://doi.org/10.1002/bse.3223

Martawardaya, B., Rakatama, A., Junifta, D. Y., & Maharani, D. A. (2022). Green economy post COVID-19: Insights from Indonesia. *Development in Practice*, 32(1), 98–106. https://doi.org/10.1080/09614524.2021.2002817

Meiling, W., Silu, P., Ikram, H., Ilham, H., Cunfang, L., & Zhengxia, H. (2020). Towards sustainable development: How does technological innovation drive the increase in green

E-ISSN: 2735-9891 DOI: https://doi.org/10.5281/zenodo.18060519

total factor productivity? *Sustainable Development*, *29*(1), 217–227. https://doi.org/10.1002/sd.2142

Navarro, A. J. L., & Martínez, A. M. E. (2024). A proposal to measure the circular economy implementation and sustainable development goals achievement using objectively weighted indices. *International Journal of Sustainable Development & World Ecology*, *31*(2), 137–149. https://doi.org/10.1080/13504509.2023.2261007

Ozturk, I., Aslan, A., & Altinoz, B. (2022). Investigating the nexus between CO2 emissions, economic growth, energy consumption and pilgrimage tourism in Saudi Arabia. *Economic Research-Ekonomska Istraživanja*, *35*(1), 3083–3098. https://doi.org/10.1080/1331677X.2021.1985577

Peng, X. Y., Zou, X. Y., Zhao, X. X., & Chang, C. P. (2023). How does economic policy uncertainty affect green innovation?. *Technological and Economic Development of Economy*, *29*(1), 114–140. https://doi.org/10.3846/tede.2022.17760

Qiu, Y., Liu, W., & Wu, J. (2023). Digital economy and urban green innovation: from the perspective of environmental regulation. *Journal of Environmental Planning and Management*, *68*(2), 267–289. https://doi.org/10.1080/09640568.2023.2244668

Sohag, K., Husain, S., Hammoudeh, S., & Omar, N. (2021). Innovation, militarization, and renewable energy and green growth in O.E.C.D. countries. *Environmental Science and Pollution Research International*, *28*(27), 36004–36017. https://doi.org/10.1007/s11356-021-13326-6

Tufail, M., Song, L., & Khan, Z. (2024). Green finance and green growth nexus: evaluating the role of globalization and human capital. *Journal of Applied Economics*, *27*(1), 1–27. https://doi.org/10.1080/15140326.2024.2309437

Wang, Q. J., Li, W. Z., Gong, Z. Y., & Fu, J. Y. (2024). The Coupling and Coordination Between Digital Economy and Green Economy: Evidence from China. *Emerging Markets Finance and Trade*, *61*(3), 562–578. https://doi.org/10.1080/1540496X.2024.2399555

Xu, Q., Li, X., Dong, Y., & Guo, F. (2023). Digitization and green innovation: how does digitization affect enterprises' green technology innovation? *Journal of Environmental Planning and Management*, *68*(6), 1282–1311. https://doi.org/10.1080/09640568.2023.2285729

Zhang, J. Z. (2025). Toward sustainable and green economics: community at the core. *Sustainable Communities*, *2*(1), 1–5. https://doi.org/10.1080/29931282.2025.2557122