

## Digital Transformation and Sustainability in Islamic Finance: Evidence from Geopolitical Uncertainty in an Emerging Regional Economy

**ABSTRACT** - Amid rapid digital advancement, empirical evidence linking digital transformation with sustainability principles in Islamic economics and finance remains limited. The evolution of this sector has increasingly reflected improvements in operational efficiency, expanded financial inclusion, and the emergence of technology-driven innovations. This study evaluates the effects of digital transformation, sustainable growth, and geopolitical uncertainty on the performance of Islamic economics and finance, with a focus on Islamic financial institutions in Lhokseumawe City. A quantitative approach is employed using Partial Least Squares–Structural Equation Modeling (PLS-SEM), based on data collected from 279 users of Islamic financial services. The findings reveal that digital transformation, sustainable growth, and geopolitical factors each exert a positive and significant influence on the performance of Islamic economics and finance. In addition, digital transformation functions as a mediating mechanism that links sustainable growth to financial performance, indicating its role in translating sustainability-oriented initiatives into measurable outcomes. These results highlight the importance of strengthening the integration between digital innovation and sustainability agendas, while also addressing external pressures arising from geopolitical uncertainty and global technological change. The study offers insights for advancing theoretical integration across these domains and provides direction for enhancing institutional adaptability, inclusiveness, and resilience within Islamic financial systems.

**ABSTRAK** - *Transformasi Digital dan Keberlanjutan dalam Keuangan Islam: Bukti dari Ketidakpastian Geopolitik di Ekonomi Regional Berkembang.* Meski teknologi digital berkembang sangat pesat, studi empiris tentang hubungan antara transformasi digital dan prinsip keberlanjutan dalam ekonomi dan keuangan Islam masih terbatas. Transformasi digital telah mempengaruhi dinamika ekonomi dan keuangan Islam lewat peningkatan efisiensi operasional, perluasan inklusi keuangan, serta inovasi berbasis teknologi. Penelitian ini bertujuan menilai pengaruh transformasi digital, pertumbuhan berkelanjutan, dan ketidakpastian geopolitik terhadap kinerja ekonomi dan keuangan Islam, khususnya pada lembaga keuangan Islam di Kota Lhokseumawe. Penelitian ini menggunakan pendekatan kuantitatif dengan metode Partial Least Squares–Structural Equation Modeling (PLS-SEM). Data diperoleh dari 279 responden yang merupakan pengguna layanan keuangan Islam di Kota Lhokseumawe. Hasil studi menunjukkan bahwa transformasi digital, pertumbuhan berkelanjutan, dan faktor geopolitik memiliki pengaruh positif dan signifikan terhadap penguatan ekonomi dan keuangan Islam. Selain itu, transformasi digital berfungsi sebagai variabel mediasi yang menghubungkan pertumbuhan berkelanjutan dan kinerja keuangan Islam. Temuan ini menegaskan pentingnya pemanfaatan teknologi digital secara efektif sebagai mekanisme kunci dalam mendukung keberhasilan pertumbuhan berkelanjutan di sektor keuangan Islam. Studi ini memberikan kontribusi dalam pengembangan kerangka teoretis yang lebih terpadu serta menawarkan arah bagi peningkatan adaptabilitas, inklusivitas, dan ketahanan lembaga keuangan Islam.

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## INTRODUCTION

The global financial landscape has undergone profound transformation due to rapid digital advancement, with notable implications for the expanding Islamic finance sector across various jurisdictions. Technologies such as blockchain, artificial intelligence (AI), big data analytics, and digital platforms have improved operational efficiency, expanded access to financial services, and enabled innovation in Sharia-compliant financial instruments, including blockchain-based *sukuk*, digital *takaful*, and Sharia-compliant peer-to-peer lending (IFSB, 2023). Despite these developments, the adoption of digital technologies within Islamic finance continues to lag behind the conventional financial sector in terms of market penetration, digital capabilities, and infrastructural readiness (Pramono, 2025).

This transformation unfolds within the context of increasingly complex global challenges. First, sustainability has emerged as a central strategic priority for financial institutions, including those operating within Islamic finance, particularly in relation to achieving the Sustainable Development Goals (SDGs) by 2030 (UNDP, 2023). The principles of Islamic finance inherently align with sustainability objectives through the framework of *maqāṣid al-sharī'ah*, which emphasizes social welfare, economic justice, and responsible resource management (Asutay, 2021). Second, financial system stability faces mounting pressure from geopolitical uncertainties driven by regional conflicts, trade tensions, and shifts in global economic policies. Such uncertainties contribute to market volatility, disrupt capital flows, and weaken investor confidence (World Bank, 2023). In this setting, digitalization serves as an adaptive mechanism that can strengthen responsiveness and support financial system stability (IMF, 2023). However, the adoption gap in Sharia-based financial technology remains a critical concern. In Indonesia, findings from the National Financial Inclusion Survey conducted by the Financial Services Authority indicate that digital financial inclusion has reached approximately 50%, while engagement with digital Islamic financial services remains below 20% (OJK, 2023). This disparity reflects limited digital Islamic financial literacy, the absence of standardized cross-country products, and regulatory constraints affecting cross-border transactions.

Lhokseumawe, one of the key economic center in Aceh Province, presents significant potential for the development of Islamic finance. Nevertheless, Islamic financial institutions in this region encounter multiple challenges that warrant further investigation, particularly in relation to digital transformation, sustainable development, and geopolitical dynamics. Digital financial services within Islamic finance remain underdeveloped. Although certain banks and cooperatives offer mobile banking, internet banking, and QRIS payment systems, adoption rates remain low. Limited public understanding of digital technologies and a lack of trust in technology-based financial services contribute to this condition. Sustainable development represents another pressing concern in Lhokseumawe, especially in light of the declining role of the oil and gas sector, which historically formed the backbone of the local economy. Islamic financial institutions are expected to support alternative sectors, including micro, small, and medium enterprises (MSMEs), agriculture, and the creative economy, as part of a broader transition toward sustainable growth. However, these efforts are constrained by limited product innovation and the scarcity of environmentally oriented financing instruments.

At the same time, global geopolitical and economic uncertainties—such as fluctuations in energy prices and shifts in national economic policies—affect the stability of Islamic financial institutions in Lhokseumawe. The city provides a relevant case for examining geopolitical uncertainty due to its structural dependence on the energy sector and its exposure to global economic dynamics. As a recognized hub for Indonesia's oil and gas industry, Lhokseumawe's economic performance is closely linked to global energy markets, international policy developments, and geopolitical conditions, particularly in the Middle East and Asia-Pacific regions. This structural reliance increases its vulnerability to external shocks compared to more diversified regional economies. Geopolitical uncertainty is also reflected in evolving national and regional economic policies shaped by global trends. Adjustments in energy subsidies, fiscal and monetary policy reforms, and strategies related to downstream industries and energy transitions directly influence investment patterns, capital flows, and the stability of financial institutions, including Islamic financial entities operating in Lhokseumawe. In this regard, geopolitical uncertainty manifests not only at the global level but also through localized economic fluctuations and policy-related risks. These conditions highlight the importance of strengthening institutional resilience through digital innovation and adaptive risk management strategies.

Existing studies have examined the influence of digital transformation, sustainable development, and geopolitical uncertainty on financial systems. However, these factors are rarely analyzed in an integrated manner within the context of Islamic finance, particularly at the local institutional level. Khalifa (2025) underscored the mediating role of digital financial literacy in fostering financial inclusion. Shafay (2024) and Varriale et al. (2025) demonstrated that digital transformation contributes to sustainable performance. Raimi and Abdur-rauf (2024) highlighted the role of Islamic finance in advancing SDGs. Meanwhile, Liu and Miao (2024), Kuzemko et al. (2025), and Zirojević (2024) explored the implications of geopolitical shifts for digital economies, though not specifically within Islamic finance. Other contributions, including Kato (2024), Sepetis et al. (2024), Shah (2025), and Alsayegh et al. (2020), have addressed sustainability and uncertainty but have not integrated these dimensions within Islamic financial institutions. The existing body of literature indicates that prior research tends to examine digital transformation, sustainability, and geopolitical uncertainty in isolation. Digitalization is often associated with financial inclusion and efficiency, sustainability with long-term economic stability, and geopolitics with global market dynamics. Limited attention has been given to the interaction among these dimensions within a unified analytical framework. Furthermore, empirical studies focusing on these relationships at the local institutional level remain scarce, particularly in regions where Islamic finance plays a significant role in regional development.

Therefore, this study seeks to address the identified research gap by examining the combined roles of digital transformation, sustainable development, and geopolitical uncertainty in shaping the performance and resilience of Islamic financial institutions, with a focus on Lhokseumawe City. It is expected to contribute to the theoretical development of Islamic economics and finance through the integration of these dimensions into a unified analytical framework. In practical terms, the study is anticipated to provide insights into the use of digital transformation to support efficiency and financial inclusion, while indicating key constraints such as limited digital literacy and product innovation. The expected findings may also inform policymakers and regulatory

authorities in developing strategies that support Sharia-compliant digital financial ecosystems, promote sustainable financing, and address risks associated with geopolitical uncertainty.

## LITERATURE REVIEW

The literature analysis in this study employs VOSviewer to map the interrelationships among key concepts and research trends related to digital transformation, sustainable growth, and geopolitical uncertainty within the context of strengthening Islamic finance. This bibliometric approach provides a structured visualization of how these concepts are interconnected and how scholarly discussions in Islamic finance have evolved alongside technological advancements and global economic dynamics. It facilitates the identification of dominant themes, frequently occurring keywords, and emerging research directions, particularly in relation to Islamic financial institutions in Lhokseumawe City.

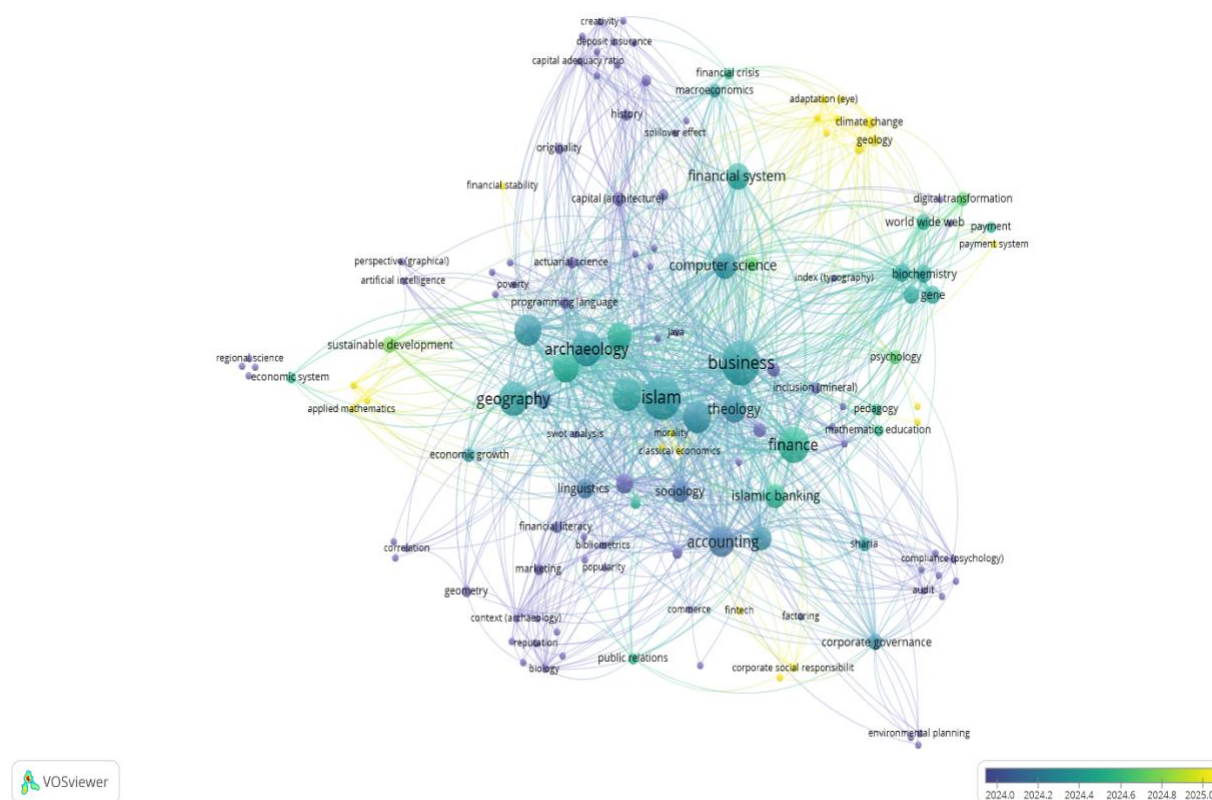


Figure 1. Literature Reviews by VOSviewer

The bibliometric mapping results (Figure 1) reveal several interconnected keyword clusters that represent the core thematic areas within the literature on Islamic economics and finance. Each cluster offers a conceptual basis for defining research variables and their corresponding indicators. The first cluster includes keywords such as Islam, Islamic banking, finance, accounting, and sharia, reflecting the foundational elements of Islamic finance, including Sharia compliance, governance, financial stability, and institutional performance. Based on this cluster, indicators of Islamic financial performance in this study include financial stability, Sharia compliance, operational efficiency, and service quality.

The second cluster comprises keywords such as business, computer science, digital transformation, payment systems, the World Wide Web, and fintech. This cluster highlights the growing role of digital technology in modern financial systems, particularly in relation to technological adoption, service digitalization, and integrated payment systems. Accordingly, the indicators for digital transformation include the adoption of digital technologies, utilization of digital platforms, integration of payment systems, and readiness of digital infrastructure within Islamic financial institutions.

The third cluster focuses on sustainable development, economic growth, regional science, and environmental planning, emphasizing the relationship between economic expansion and long-term sustainability. This cluster informs the identification of sustainable growth indicators, including financing for productive sectors, support for micro, small, and medium enterprises (MSMEs), long-term economic resilience, and contributions to the Sustainable Development Goals (SDGs) (Syahputra et al., 2025). The fourth cluster includes financial system, financial crisis, macroeconomics, capital adequacy ratio, and financial stability, reflecting concerns related to systemic risk and institutional resilience. This cluster underpins the operationalization of geopolitical uncertainty through indicators such as market volatility, economic policy uncertainty, external risks, and pressures on financial stability.

### **Digital Transformation**

Digital transformation (DT) refers to the integration of advanced technologies, including artificial intelligence (AI), blockchain, big data, and the Internet of Things, into organizational processes to enhance innovation, efficiency, and resilience. Existing studies indicate that DT supports sustainability performance through data-driven decision-making, resource optimization, and improved transparency across value chains (Shafay, 2024; Varriale et al., 2025). In financial systems, DT contributes to the development of sustainable finance models, particularly when aligned with environmental, social, and governance (ESG) principles and ethical frameworks (Sepetis et al., 2024). Within Islamic economics and finance, DT is associated with improved transparency, strengthened alignment with *maqāṣid al-sharī'ah*, and expanded financial inclusion through instruments such as digital *sukuk*, Islamic fintech platforms, and blockchain-based contracts.

**H1:** Digital Transformation has a positive effect on Islamic Economics and Finance.

### **Regulatory Support**

Regulatory support refers to the institutional and policy frameworks that enable digital and financial innovation while ensuring alignment with sustainability and Sharia principles. Evidence suggests that well-aligned regulatory environments, such as those reflected in Saudi Arabia's Vision 2030, facilitate the integration of ESG considerations and digital innovation within Islamic finance (Shalhoob, 2025). Regulatory systems also evolve alongside digital transformation, with improvements in monitoring, transparency, and risk management.

**H2:** Digital Transformation has a positive effect on Regulatory Support.

### **Digital Trust**

Digital trust represents stakeholders' confidence in technological systems, data security, and ethical governance. In Islamic finance, trust is closely linked to the principles of *amanah* (trustworthiness) and *adl* (justice). Prior research indicates that the combination of digitalization and transparent governance strengthens stakeholder trust and encourages ethical investment behavior (Shalhoob, 2025; Sepetis et al., 2024). Enhanced digital trust contributes to the credibility of Islamic financial platforms and supports broader market participation.

**H3:** Digital Trust has a positive effect on Islamic Economics and Finance.

### Geopolitics

Geopolitical dynamics, including global digital competition, energy transitions, and regional alliances, play an increasingly important role in shaping technological development. Studies highlight that in a volatile, uncertain, complex, and ambiguous (VUCA) environment, geopolitical factors stimulate innovation and encourage countries to strengthen their digital capabilities (Liu & Miao, 2024; Shah, 2025). Furthermore, global energy transitions and economic interdependence influence the adoption of sustainable and technology-driven economic models (Kuzemko et al., 2025). These dynamics contribute to digital transformation and may support the development of Islamic financial ecosystems through enhanced stability and expanded market linkages.

**H4:** Geopolitics has a positive effect on Digital Transformation.

**H5:** Geopolitical factors have a positive effect on Islamic Economics and Finance.

### Sustainable Growth

Sustainable growth refers to the ability of an economy or institution to balance economic performance, social equity, and environmental responsibility. The literature emphasizes that sustainability in finance is achieved when growth aligns with ethical principles, inclusivity, and the objectives of *maqāṣid al-sharī'ah* (Kato, 2024; Raimi & Abdur-rauf, 2024). Sustainable growth provides a foundation for innovation and long-term competitiveness, while also supporting Islamic finance through value-based activities, risk-sharing mechanisms, and socially responsible investments.

**H6:** Sustainable Growth has a positive effect on Digital Transformation.

**H7:** Sustainable Growth has a positive effect on Islamic Economics and Finance.

### Mediating Role of Digital Transformation

Sustainable growth establishes the conditions necessary for digital readiness, while digital transformation functions as a mechanism that translates sustainability initiatives into measurable outcomes. Prior studies indicate that digital technologies accelerate progress toward the SDGs through improvements in governance, transparency, and accountability (Shafay, 2024; Varriale et al., 2025). Within Islamic finance, DT operationalizes sustainability principles, reinforcing Sharia compliance, transparency, and financial inclusion.

**H8:** Digital Transformation mediates the relationship between Sustainable Growth and Islamic Economics and Finance.



is utilized to analyze the structural relationships among these constructs. This approach is suitable for examining complex models involving multiple latent variables and indicators. The analysis is conducted using SmartPLS 3.0 software, which facilitates simultaneous estimation of measurement and structural models, as well as model validation.

The conceptual model is developed based on an extensive review of the literature and further refined through expert consideration. The independent variables include digital transformation, sustainable growth, geopolitical uncertainty, digital trust, and regulatory support, while Islamic economics and finance is positioned as the dependent variable. The model captures the interaction among these constructs within the context of strengthening Islamic financial systems amid ongoing digital and geopolitical developments.

### Data Collection Method

The population of this study consists of residents of Lhokseumawe City, particularly individuals who use or have the potential to use Islamic financial services and fintech-based Islamic products, such as mobile banking, digital *takaful*, and QRIS-based transactions. Given the practical constraints in surveying the entire population, the sample size is determined based on the guideline proposed by Hair and Sarstedt (2019), which recommends a minimum of five to ten observations per indicator. With a total of 31 indicators, a multiplier of nine is applied, resulting in a sample size of 279 respondents ( $31 \times 9 = 279$ ). This sample size is considered sufficient to ensure statistical robustness and representativeness.

A purposive sampling technique is adopted to select respondents who possess relevant knowledge or experience with Islamic financial services. Data are collected through structured questionnaires distributed directly to the selected participants. The measurement of variables utilizes a five-point Likert scale, capturing respondents' perceptions across the dimensions of digital transformation, digital trust, geopolitical uncertainty, regulatory support, sustainable growth, and Islamic economics and finance.

The operationalization of variables, as presented in Table 1, is derived from established literature. Regulatory support is measured through indicators such as clarity of rules, policy consistency, digital support, legal protection, and ease of compliance (Amnas & Selvam, 2024). Sustainable growth includes indicators related to business financing, MSME support, long-term benefits, social considerations, and sustainability (Mikhno et al., 2021). Geopolitical uncertainty is assessed through perceptions of policy changes, global economic and political conditions, energy price fluctuations, and public confidence (Reardon, 2025). Digital trust encompasses security, data privacy, system reliability, information clarity, and user trust (Hollebeek, 2019). Digital transformation is measured through technology utilization, digital accessibility, service convenience, innovation, and system readiness (Varriale et al., 2025). Islamic economics and finance is evaluated through Sharia compliance, financial stability, service quality, public trust, overall performance, and socio-economic impact (Zatadini et al., 2025; Asutay, 2021).

Table 1. Operational Variable

Variable	Code	Indicator	Questionnaire Statement
Regulatory Support	RS1	Clarity of rules	Government rules on Islamic finance are easy to understand.

Variable	Code	Indicator	Questionnaire Statement
	RS2	Policy consistency	Islamic finance regulations are applied consistently.
	RS3	Digital support	Government regulations support digital Islamic financial services.
	RS4	Legal protection	Existing regulations protect Islamic financial institutions well.
	RS5	Ease of compliance	Islamic financial institutions can easily comply with regulations.
<b>Sustainable Growth</b>	SGT1	Business financing	Islamic finance helps finance community businesses.
	SGT2	MSME support	Islamic finance supports small and medium-sized businesses.
	SGT3	Long-term benefits	Islamic finance supports long-term economic development.
	SGT4	Social concern	Islamic finance considers social impacts on the community.
	SGT5	Sustainability	Islamic finance supports sustainable development.
<b>Geopolitical Uncertainty</b>	GU1	Policy changes	Changes in government policy affect Islamic finance.
	GU2	Global economy	Global economic conditions affect Islamic finance.
	GU3	Global politics	Global political situations affect Islamic finance.
	GU4	Energy prices	Changes in energy prices affect local financial conditions.
	GU5	Public confidence	Global uncertainty affects public trust in Islamic finance.
<b>Digital Trust</b>	DT1	Security	I feel safe using digital Islamic financial services.
	DT2	Data privacy	My personal data is safe when using digital services.
	DT3	System reliability	Digital Islamic financial services rarely experience problems.
	DT4	Information clarity	Digital transaction information is clear and easy to understand.
	DT5	User trust	I trust using digital Islamic financial services.
<b>Digital Transformation</b>	DTf1	Technology use	Islamic financial institutions use digital technology.
	DTf2	Digital access	Islamic financial services are easy to access digitally.
	DTf3	Service convenience	Digital technology makes Islamic financial services easier to use.
	DTf4	Innovation	Islamic finance offers new digital services.
	DTf5	System readiness	Digital systems in Islamic finance are ready to use.
<b>Islamic Economics and Finance</b>	IEF1	Sharia compliance	Islamic financial services follow Sharia principles.
	IEF2	Financial condition	Islamic financial institutions are financially stable.
	IEF3	Service quality	Islamic financial services provide good service.
	IEF4	Public trust	I trust Islamic financial institutions.
	IEF5	Overall performance	Overall, Islamic finance performs well.
	IEF6	Socio-economic impact	In my opinion, Islamic finance helps improve people's welfare and economy.

### Data Analysis Method

Data analysis is conducted using PLS-SEM with SmartPLS 3.0 to assess both the measurement model and the structural model. The measurement model evaluation focuses on validity and reliability, including convergent validity, discriminant validity, and composite reliability. Indicators are considered valid when outer loadings exceed 0.60 and the Average Variance Extracted (AVE) is greater than 0.50. Reliability is established when Cronbach's alpha and composite reliability values exceed 0.70.

The structural model is evaluated using bootstrapping procedures to test the significance of hypothesized relationships. The strength and direction of relationships among variables are

assessed using path coefficients and t-statistics. A hypothesis is considered supported when the t-value exceeds 1.97 at a 95% confidence level, indicating statistical significance of the proposed relationships.

## RESULTS AND DISCUSSION

This section presents the empirical findings of the study and provides an analytical interpretation of the relationships among the examined variables. The results are organized into two main parts. The first part outlines the empirical findings, including the respondent profile, evaluation of the measurement model, and assessment of the structural model using Partial Least Squares Structural Equation Modeling (PLS-SEM). The second part discusses the findings in relation to the proposed hypotheses and existing literature, focusing on the roles of digital transformation, sustainable growth, geopolitical uncertainty, digital trust, and regulatory support in shaping the performance of Islamic economics and finance.

### Results

#### *Respondent Profile*

The respondent profile as illustrated in Table 2 indicates that the majority of participants are female (62.0%), while male respondents account for 38.0%. In terms of age distribution, most respondents are under 20 years (36.2%), followed by those aged 20–29 years (29.4%) and 30–39 years (22.6%). Smaller proportions are observed among respondents aged 40–49 years (8.6%) and those aged 50 years or older (3.2%).

Educational attainment shows that most respondents hold a bachelor's degree (41.2%), followed by senior high school or vocational education (27.2%) and junior high school (15.1%). A smaller proportion consists of respondents with postgraduate qualifications (14.0%), diploma degrees (2.1%), and elementary education (0.4%). Regarding marital status, the majority are single (67.0%), followed by married individuals (30.5%) and others (2.5%).

Table 2. Respondent Description

Variable	Category	Respondents	Percentage
Gender	Male	106	38.0
	Female	173	62.0
Age	< 20 years	101	36.2
	20–29 years	82	29.4
	30–39 years	63	22.6
	40–49 years	24	8.6
	≥ 50 years	9	3.2
Education	Elementary School or equivalent	1	0.4
	Junior High School	42	15.1
	Senior High School/Vocational	76	27.2
	Diploma (D3)	6	2.1
	Bachelor's Degree (S1)	115	41.2
	Master's/Doctoral Degree (S2/S3)	39	14.0
Marital Status	Single	187	67.0
	Married	85	30.5
	Others	7	2.5

(Source: Analysis Results, 2025)

### Measurement Model Evaluation

The assessment of convergent validity demonstrates that all indicators meet the recommended threshold, with outer loading values exceeding 0.60 (Table 3). The digital transformation construct (DT1–DT5) shows loadings ranging from 0.854 to 0.941, while digital trust (DGT1–DGT5) ranges from 0.776 to 0.896.

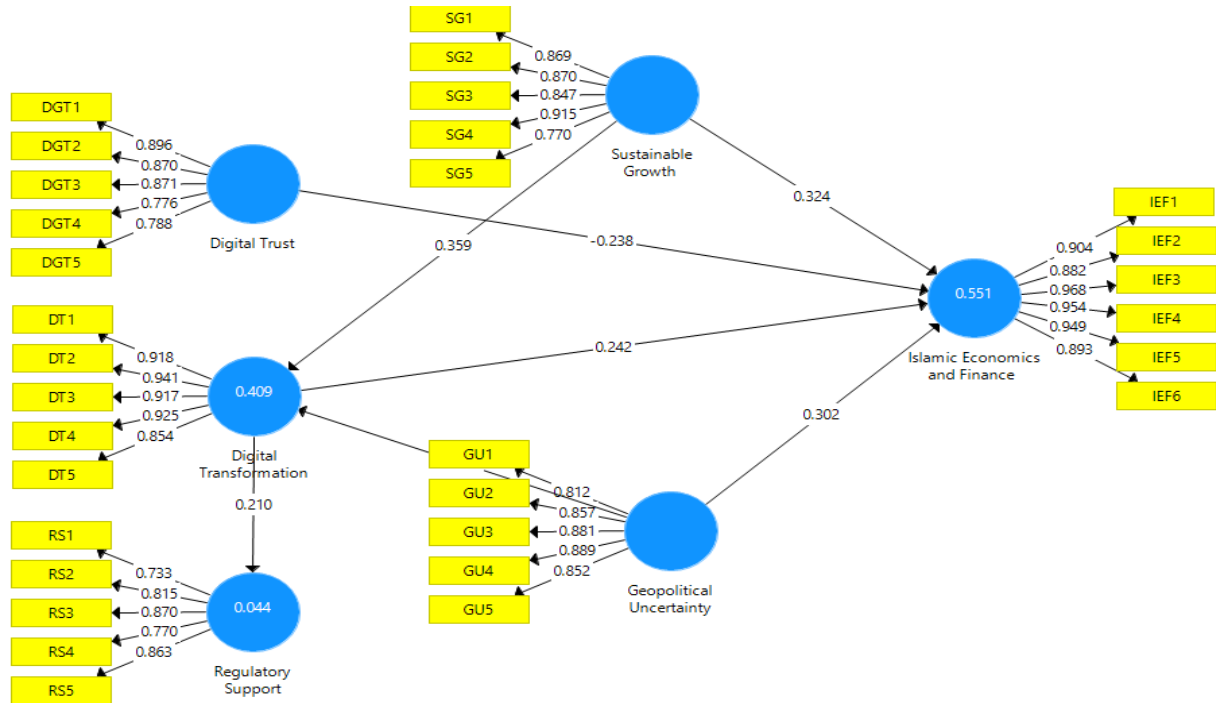


Figure 3. Convergent Validity

Geopolitical uncertainty (GU1–GU5) exhibits loadings between 0.812 and 0.889. Islamic economics and finance (IFP1–IFP6) records the highest loadings, ranging from 0.882 to 0.968. Regulatory support (RS1–RS5) ranges from 0.733 to 0.870, and sustainable growth (SG1–SG5) ranges from 0.770 to 0.915. These results indicate that all indicators adequately represent their respective constructs, and no items are excluded from the model.

Table 3. The Result Construct Validity for Each Indicator

Variable	Indicator	Outer Loading	Description
Digital Transformation	DT1	0.918	Valid
	DT2	0.941	Valid
	DT3	0.917	Valid
	DT4	0.925	Valid
	DT5	0.854	Valid
Digital Trust	DGT1	0.896	Valid
	DGT2	0.870	Valid
	DGT3	0.871	Valid
	DGT4	0.776	Valid
	DGT5	0.788	Valid
Geopolitical Uncertainty	GU1	0.812	Valid
	GU2	0.857	Valid
	GU3	0.881	Valid
	GU4	0.889	Valid
	GU5	0.852	Valid
Islamic Finance	IFP1	0.904	Valid
	IFP2	0.882	Valid
	IFP3	0.968	Valid

Variable	Indicator	Outer Loading	Description
	IFP4	0.954	Valid
	IFP5	0.949	Valid
	IFP6	0.893	Valid
Regulatory Support	RS1	0.733	Valid
	RS2	0.815	Valid
	RS3	0.870	Valid
	RS4	0.770	Valid
	RS5	0.863	Valid
Sustainable Growth	SG1	0.869	Valid
	SG2	0.870	Valid
	SG3	0.847	Valid
	SG4	0.915	Valid
	SG5	0.770	Valid

(Source: Analysis Results, 2025)

Further validation through Average Variance Extracted (AVE) confirms that all constructs exceed the minimum threshold of 0.50 (Table 4), with values of 0.857 for Islamic economics and finance, 0.830 for digital transformation, 0.737 for geopolitical uncertainty, 0.732 for sustainable growth, 0.708 for digital trust, and 0.659 for regulatory support (Source: Analysis results, 2025).

Table 4. The Results of Testing the Validity of the Research Instrument

Variable	Average Variance Extracted (AVE)	Description
Digital Transformation	0.830	Valid
Digital Trust	0.708	Valid
Geopolitical Uncertainty	0.737	Valid
Islamic Finance	0.857	Valid
Regulatory Support	0.659	Valid
Sustainable Growth	0.732	Valid

(Source: Analysis Results, 2025)

Reliability testing (Table 5) shows that all constructs meet internal consistency requirements, with Cronbach's alpha, rho\_A, and composite reliability values exceeding 0.70. Islamic economics and finance demonstrates the highest reliability ( $\alpha = 0.966$ ; CR = 0.973), followed by digital transformation ( $\alpha = 0.949$ ; CR = 0.961), geopolitical uncertainty ( $\alpha = 0.910$ ; CR = 0.933), sustainable growth ( $\alpha = 0.908$ ; CR = 0.932), digital trust ( $\alpha = 0.905$ ; CR = 0.924), and regulatory support ( $\alpha = 0.872$ ; CR = 0.906).

Table 5. The Results of Testing the Reliability of the Research Instrument

Variable	Cronbach's Alpha	rho_A	Composite Reliability	Description
Digital Transformation	0.949	0.950	0.961	Reliable
Digital Trust	0.905	0.966	0.924	Reliable
Geopolitical Uncertainty	0.910	0.911	0.933	Reliable
Islamic Economic and Finance	0.966	0.967	0.973	Reliable
Regulatory Support	0.872	0.890	0.906	Reliable
Sustainable Growth	0.908	0.919	0.932	Reliable

(Source: Analysis Results, 2025)

Discriminant validity is confirmed using the Fornell–Larcker criterion (Table 6), where the square root of AVE for each construct exceeds its correlations with other constructs. The highest values are observed for Islamic economics and finance (0.926), digital transformation (0.911), geopolitical uncertainty (0.858), sustainable growth (0.855), digital trust (0.842), and regulatory support (0.812). These findings indicate that each construct is empirically distinct.

Table 6. Fornell Larcker Criterion

Variable	Digital Transformation	Digital Trust	Geopolitical Uncertainty	Islamic Economics and Finance	Regulatory Support	Sustainable Growth
Digital Transformation	0.911					
Digital Trust	0.133	0.842				
Geopolitical Uncertainty	0.575	0.035	0.858			
Islamic Economics and Finance	0.571	0.118	0.635	0.926		
Regulatory Support	0.210	0.614	0.154	0.086	0.812	
Sustainable Growth	0.578	0.239	0.625	0.596	0.181	0.855

(Source: Analysis Results, 2025)

The structural model evaluation (Table 7) shows that digital transformation has an  $R^2$  value of 0.409 (Adjusted  $R^2 = 0.401$ ), indicating moderate explanatory power. Islamic economics and finance records an  $R^2$  value of 0.571 (Adjusted  $R^2 = 0.556$ ), suggesting that the model explains a substantial proportion of variance in this construct (Source: Analysis results, 2025).

Table 7. R Square and Adjusted R Square Values

Variable	R Square	R Square Adjusted
Digital Transformation	0.409	0.401
Islamic Economics and Finance	0.571	0.556

(Source: Analysis Results, 2025)

### Structural Model and Hypothesis Testing

Hypothesis testing is conducted using bootstrapping procedures in SmartPLS (Table 8). The results indicate that all proposed relationships are statistically significant at the 5% level. Sustainable growth significantly influences digital transformation ( $T = 3.966$ ;  $p = 0.000$ ). Geopolitical uncertainty shows significant effects on both digital transformation ( $T = 3.392$ ;  $p = 0.001$ ) and Islamic economics and finance ( $T = 2.379$ ;  $p = 0.018$ ). Digital transformation significantly affects Islamic economics and finance ( $T = 2.508$ ;  $p = 0.012$ ) and regulatory support ( $T = 2.590$ ;  $p = 0.010$ ).

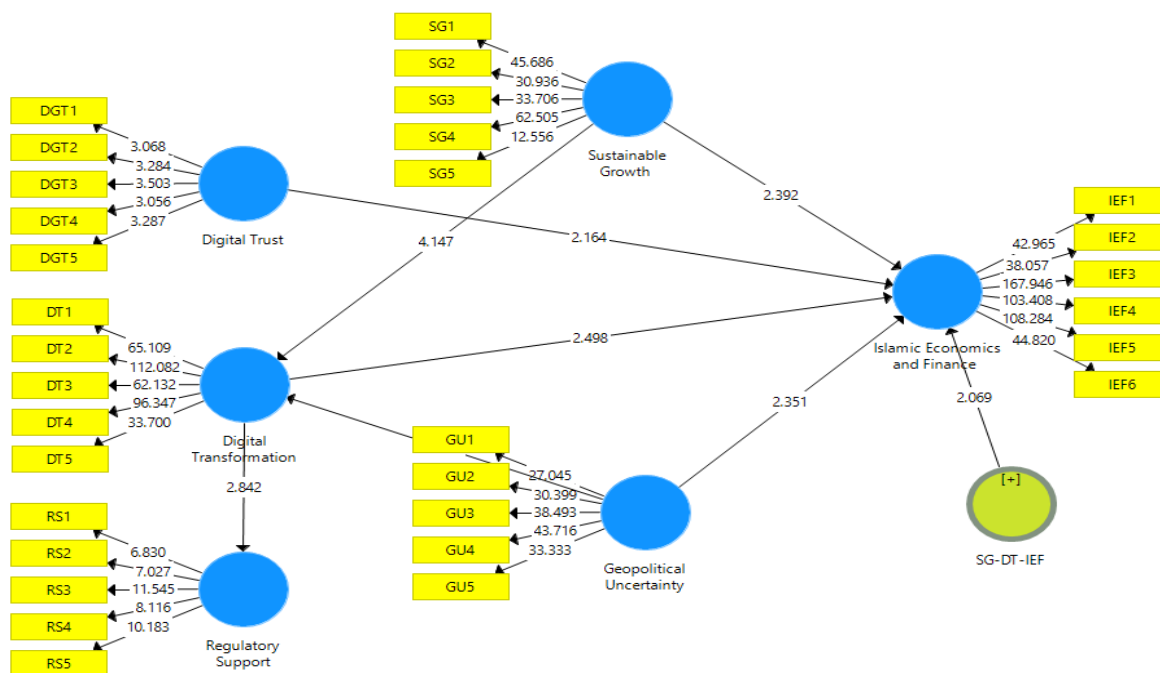


Figure. 4 Smart PLS Bootstrapping Test

Sustainable growth also has a significant effect on Islamic economics and finance ( $T = 2.505$ ;  $p = 0.013$ ). Digital trust demonstrates a significant influence on Islamic economics and finance ( $T = 2.499$ ;  $p = 0.013$ ). In addition, digital transformation mediates the relationship between sustainable growth and Islamic economics and finance ( $T = 2.166$ ;  $p = 0.031$ ) (Source: Analysis results, 2025).

Table 8. Hypothesis

No.	Correlation	STDEV	T-Statistics	P-Value	Result
1	Sustainable Growth → Digital Transformation	0.090	3.966	0.000	Significant
2	Geopolitical Uncertainty → Digital Transformation	0.103	3.392	0.001	Significant
3	Geopolitical Uncertainty → Islamic Economics and Finance	0.112	2.379	0.018	Significant
4	Digital Transformation → Islamic Economics and Finance	0.101	2.508	0.012	Significant
5	Sustainable Growth → Islamic Economics and Finance	0.091	2.505	0.013	Significant
6	Digital Transformation → Regulatory Support	0.081	2.590	0.010	Significant
7	SG-DT-IEF → Islamic Economics and Finance	0.077	2.166	0.031	Significant
8	Digital Trust → Islamic Economics and Finance	0.086	2.499	0.013	Significant

(Source: Analysis Results, 2025)

## Discussion

### Digital Transformation and Islamic Economics and Finance

The findings indicate that digital transformation exerts a positive and significant influence on Islamic economics and finance. This relationship reflects the increasing relevance of digital technologies in enhancing efficiency, accessibility, and service delivery within Islamic financial

systems. The result aligns with the theoretical perspective that digital transformation facilitates value creation through improved information processing, reduced transaction costs, and enhanced customer engagement. Prior studies have similarly emphasized that digital technologies support sustainability performance and operational efficiency through data-driven decision-making and transparent value chains (Shafay, 2024; Varriale et al., 2025).

Within the context of Islamic finance, digital transformation also intersects with the principles of *maqāṣid al-sharī'ah*, particularly in promoting financial inclusion and equitable access to financial services. However, the presence of what is described as “sifting bias” (Urban et al., 2025) suggests that digital transformation does not produce uniformly positive outcomes. Instead, it introduces transitional dynamics in which benefits and risks coexist. This indicates that the effectiveness of digital transformation depends on institutional readiness, governance structures, and the ability to manage technological disruptions. The findings therefore reflect a nuanced relationship, where digital transformation acts as both an enabler and a potential source of structural adjustment within Islamic financial systems.

#### *Digital Transformation and Regulatory Support*

The positive association between digital transformation and regulatory support highlights the interdependence between technological innovation and institutional frameworks. This relationship can be interpreted through the lens of institutional theory, which emphasizes that regulatory structures shape organizational behavior and innovation pathways. The findings suggest that as digital transformation advances, there is a corresponding need for regulatory systems to evolve in order to maintain oversight, ensure compliance with Sharia principles, and address emerging risks.

This observation is consistent with Amnas and Selvam (2024), who argue that perceived regulatory support strengthens the impact of fintech adoption on financial inclusion. A supportive regulatory environment enhances public confidence and reduces uncertainty, thereby encouraging greater engagement with digital financial services. At the same time, the relatively moderate strength of this relationship suggests that regulatory adaptation may lag behind technological change, particularly in contexts where digital Islamic finance is still developing. This gap points to the importance of regulatory flexibility and the alignment of policy frameworks with technological innovation.

#### *The Role of Digital Trust in Islamic Finance*

Digital trust emerges as a significant determinant of Islamic economics and finance, underscoring the central role of trust in technology-mediated financial interactions. This finding is consistent with the foundational principles of Islamic finance, particularly *amanah* (trustworthiness) and *adl* (justice), which emphasize ethical conduct and transparency. Trust in digital systems encompasses perceptions of security, data privacy, system reliability, and clarity of information, all of which influence user acceptance and continued engagement.

Empirical studies have demonstrated that trust is a key driver of financial inclusion, particularly in digital environments (Kasri & Kholis, 2024; Aydin & Yüksek, 2024; Zulvianti et al., 2023; Melani, 2024). The present findings reinforce this perspective, suggesting that digital trust

functions as a bridge between technological infrastructure and user participation. At the same time, the relatively modest effect size indicates that trust alone may not be sufficient to drive adoption. Structural factors such as digital literacy, accessibility, and regulatory assurance also play complementary roles. This highlights the multidimensional nature of digital trust within Islamic financial ecosystems.

### *Geopolitical Dynamics and Financial Transformation*

The results demonstrate that geopolitical uncertainty has a positive and significant effect on both digital transformation and Islamic economics and finance. This relationship reflects the role of external pressures in accelerating technological adoption and institutional adaptation. In a volatile and uncertain global environment, organizations and financial systems often respond by strengthening digital capabilities to enhance resilience and maintain competitiveness.

This finding is consistent with Liu and Miao (2024) and Shah (2025), who highlight how geopolitical competition and global uncertainty stimulate innovation and digital development. Similarly, Kuzemko et al. (2025) emphasize the interconnectedness of energy transitions, technological change, and geopolitical dynamics. Within the context of Islamic finance, geopolitical uncertainty may create both challenges and opportunities. On one hand, it introduces risks related to market volatility and policy instability. On the other hand, it encourages the adoption of alternative financial models that emphasize ethical investment and risk-sharing mechanisms.

The positive relationship between geopolitical uncertainty and Islamic economics and finance suggests that Islamic financial systems may exhibit adaptive characteristics in response to external shocks. This aligns with the argument that Islamic finance, with its emphasis on asset-backed transactions and risk-sharing, offers a degree of resilience in uncertain environments (Shah, 2025). However, the strength of this relationship remains moderate, indicating that geopolitical factors interact with other structural and institutional variables.

### *Sustainable Growth and Islamic Financial Development*

Sustainable growth shows a significant positive influence on both digital transformation and Islamic economics and finance. This finding reflects the compatibility between sustainability principles and the foundational values of Islamic finance. The concept of sustainable growth, which integrates economic, social, and environmental dimensions, aligns closely with the objectives of *maqāṣid al-sharī'ah*.

The positive relationship between sustainable growth and digital transformation suggests that sustainability-oriented strategies encourage the adoption of innovative technologies. This is supported by Shafay (2024) and Varriale et al. (2025), who argue that digitalization enhances the implementation of sustainability initiatives through improved governance and resource efficiency. Sepetis et al. (2024) further emphasize the role of ESG integration in strengthening sustainable finance models.

In relation to Islamic economics and finance, sustainable growth contributes to the expansion of value-based financial activities, particularly in sectors such as MSMEs and socially responsible investments. This is consistent with findings from Kato (2024) and Raimi, Abdur-rauf (2024),

and Ibrahim (2018), who highlight the role of Islamic finance in promoting inclusive and ethical economic development. However, the relatively moderate effect size suggests that the translation of sustainability principles into financial performance may depend on institutional capacity, product innovation, and market conditions.

### *Mediating Role of Digital Transformation*

The mediating effect of digital transformation in the relationship between sustainable growth and Islamic economics and finance highlights its role as an enabling mechanism that links sustainability objectives with financial outcomes. This finding suggests that sustainability initiatives alone may not directly translate into improved financial performance without the support of digital infrastructure and technological capabilities.

Digital transformation facilitates the operationalization of sustainability principles through enhanced transparency, efficiency, and accessibility. This is consistent with Shafay (2024) and Varriale et al. (2025), who emphasize that digital technologies accelerate progress toward sustainability goals through improved governance and accountability. Within Islamic finance, digital platforms enable the development of innovative instruments (Nursabna et al., 2023), such as green *sukuk*, which integrate environmental objectives with Sharia-compliant financing structures (Aldhaheri, 2025).

At the same time, challenges related to scalability, standardization, and regulatory alignment remain evident (Pramono, 2025). These challenges indicate that the mediating role of digital transformation is contingent upon broader ecosystem readiness, including technological infrastructure, regulatory frameworks, and market acceptance. The findings therefore suggest that digital transformation functions as a critical, yet context-dependent, mechanism in strengthening the link between sustainable growth and Islamic financial development.

### **Research Implications**

The findings of this study carry several implications for the development of Islamic economics and finance research. First, the integration of digital transformation, sustainable growth, and geopolitical uncertainty into a single analytical framework highlights the need for more holistic approaches in examining Islamic financial systems. Future research may further explore the dynamic interactions among these variables across different institutional and geographical contexts.

Second, the results suggest that digital transformation should be examined not only as a direct driver of financial performance but also as a mediating and context-dependent variable influenced by sustainability and external uncertainties. This opens opportunities for extending theoretical models within Islamic finance by incorporating technological and geopolitical dimensions.

Third, the moderate explanatory power observed in the structural model indicates that additional variables may play a role in shaping Islamic financial performance. Factors such as digital literacy, institutional governance, cultural context, and financial inclusion mechanisms may provide further explanatory depth in future studies.

Finally, the findings encourage the refinement of measurement approaches in Islamic finance research, particularly in capturing abstract constructs such as trust, sustainability, and geopolitical uncertainty. This may support the development of more robust empirical models that reflect the evolving nature of Islamic financial systems in a digitally driven and globally interconnected environment.

## CONCLUSION

The findings of this study indicate that digital transformation holds a central role in strengthening Islamic economics and finance, both directly and indirectly. Its direct contribution is reflected in improvements in operational efficiency, financial inclusion, and the emergence of innovative products such as green *sukuk* and blockchain-based *takaful*. Indirectly, digital transformation is associated with the development of adaptive regulatory support and the reinforcement of digital trust, which together shape a more responsive financial ecosystem. Sustainable growth appears as a key driver that encourages digitalization while simultaneously reinforcing the role of Islamic finance in supporting inclusive and ethical economic development. In parallel, geopolitical dynamics contribute to accelerating technological adoption as institutions respond to external uncertainty and seek to maintain resilience. The findings also highlight the role of Islamic financial inclusion, particularly in expanding access and reducing gender disparities, which reflects distinctive characteristics of the Islamic financial system compared to conventional models. At the same time, several structural challenges remain evident, including uneven fintech adoption, limited availability of Sharia-compliant investment instruments, regulatory fragmentation across jurisdictions, and relatively low levels of Islamic financial literacy.

From a research perspective, this study contributes to the development of Islamic economics and finance literature through the integration of digital transformation, sustainable growth, and geopolitical uncertainty into a unified analytical framework. The results suggest that these dimensions are interconnected and should be examined collectively to better understand the evolving dynamics of Islamic financial systems. The study also highlights the importance of considering digital transformation not only as a technological shift but as a multidimensional process involving institutional adaptation, trust formation, and regulatory evolution. These insights provide a basis for further theoretical refinement and empirical exploration, particularly in examining how Islamic financial institutions respond to global uncertainty while maintaining alignment with *maqāṣid al-sharī'ah*. In addition, the findings point to the relevance of expanding analytical models to include complementary factors such as digital literacy, governance quality, and financial inclusion mechanisms.

This study is subject to several limitations that offer directions for future research. The focus on Lhokseumawe City limits the generalizability of the findings to other regions with different economic structures and levels of Islamic financial development. The cross-sectional nature of the data restricts the ability to capture dynamic changes over time, particularly in relation to rapidly evolving digital and geopolitical conditions. Furthermore, the model explains a moderate proportion of variance, indicating the presence of additional influencing factors that were not included in the analysis. Future research may consider comparative studies across regions or countries, longitudinal approaches to capture temporal dynamics, and the inclusion of additional variables such as digital literacy, institutional governance, and cultural factors. Expanding the

scope of analysis may provide a more comprehensive understanding of how Islamic finance adapts within an increasingly digital and uncertain global environment.

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