

Mediating Role of I-Fintech Adoption between Government Support, Digital Financial Literacy and Sustainable Entrepreneurship of Malaysian Bumiputera MSMEs

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ABSTRACT

The rapid digitalisation of the financial sector has created new opportunities for MSMEs to enhance their competitiveness and achieve sustainable entrepreneurship. In Malaysia, i-FinTech has emerged as an innovative mechanism for improving financial inclusion and supporting the sustainable growth of Bumiputera-owned MSMEs through Shariah-compliant digital financial services. Despite extensive government initiatives promoting digital entrepreneurship, the mechanisms through which government support and digital financial literacy contribute to sustainable entrepreneurship remain insufficiently understood. Accordingly, this study examines the mediating role of i-FinTech adoption in the relationships between government support, digital financial literacy, and sustainable entrepreneurship among Malaysian Bumiputera MSMEs. A quantitative cross-sectional research design was employed, and data were collected from 1,394 Bumiputera MSME owners using a structured questionnaire. The proposed research model was analysed using PLS-SEM. The findings indicate that government support has a significant positive effect on both sustainable entrepreneurship and i-FinTech adoption. Similarly, i-FinTech adoption significantly enhances sustainable entrepreneurship. However, digital financial literacy does not significantly influence either sustainable entrepreneurship or i-FinTech adoption. Mediation analysis further reveals that i-FinTech adoption partially mediates the relationship between government support and sustainable entrepreneurship but does not mediate the relationship between digital financial literacy and sustainable entrepreneurship. These findings highlight the pivotal role of institutional support in accelerating i-FinTech adoption and promoting sustainable entrepreneurial development among Bumiputera MSMEs. The study contributes to the literature by integrating Institutional Theory and the Resource-Based View to explain sustainable entrepreneurship within the context of Islamic financial technology. The findings also provide practical implications for policymakers and entrepreneurship development agencies in designing integrated strategies that combine government support with digital financial innovation to strengthen the sustainability of Bumiputera MSMEs.

Keywords: Sustainable Entrepreneurship; Government Support; Digital Financial Literacy; i-FinTech Adoption; Bumiputera MSMEs

INTRODUCTION

Beyond the economic significance, micro, small, and medium enterprises (MSMEs) are instrumental in achieving inclusive growth by creating entrepreneurial opportunities for diverse communities, particularly Bumiputera entrepreneurs, who remain central to Malaysia's socio-economic development agenda. Bumiputera-owned MSMEs represent an important segment due to their strategic role in achieving Malaysia's national agenda of equitable wealth distribution and sustainable economic empowerment. Recognising this importance, the Malaysian government has consistently prioritised the development of Bumiputera entrepreneurship through policies, financial assistance, capacity-building programmes, and digital transformation initiatives aimed at enhancing long-term business competitiveness and sustainability (SME Corp. Malaysia, 2025). Further, for Bumiputera entrepreneurs, whose businesses often operate within Islamic financial ecosystems, Islamic

Financial Technology (i-FinTech) presents new opportunities to improve financial accessibility, operational efficiency, financial inclusion, and business sustainability.

The growing importance of i-FinTech aligns closely with Malaysia's aspiration to become a global leader in Islamic finance and digital economy development. Government initiatives under the National Entrepreneurship Policy 2030 (NEP 2030), the Twelfth Malaysia Plan (12MP), the Malaysia Digital initiative, and the Financial Sector Blueprint have consistently emphasised digital transformation, financial inclusion, and entrepreneurship development as strategic priorities (Economic Planning Unit, 2021; Ministry of Entrepreneur Development and Cooperatives [MEDAC], 2021). Various agencies, including SME Corp. Malaysia, Malaysia Digital Economy Corporation (MDEC), Bank Negara Malaysia (BNM), and the Securities Commission Malaysia, have introduced grants, digitalisation programmes, financing schemes, and training initiatives to encourage MSMEs to adopt digital technologies and innovative financial solutions. These initiatives demonstrate the government's commitment to strengthening entrepreneurial ecosystems through institutional support and digital innovation.

Despite these considerable efforts, many Bumiputera MSMEs continue to encounter persistent challenges in achieving sustainable entrepreneurship. Sustainable entrepreneurship refers to the ability of entrepreneurs to simultaneously pursue economic viability, social responsibility, and environmental stewardship while ensuring long-term business continuity (Shepherd & Patzelt, 2019). Compared with larger organisations, MSMEs often experience limited financial resources, inadequate technological capabilities, insufficient managerial competencies, and restricted access to formal financing, all of which hinder sustainable business growth. Furthermore, rapid technological advancement and evolving customer expectations require entrepreneurs to continuously adapt to digital business models, creating additional pressures for firms with limited digital capabilities (Kraus et al., 2022). Consequently, business sustainability increasingly depends not only on financial capital but also on entrepreneurs' ability to leverage digital technologies and innovative financial services effectively.

Among the factors influencing entrepreneurial sustainability, government support has long been recognised as a critical institutional resource that promotes business development. Government support includes financial assistance, grants, tax incentives, training programmes, advisory services, regulatory facilitation, and digital infrastructure that collectively create an enabling environment for entrepreneurial growth (Ismail et al., 2023). Previous studies have consistently demonstrated that institutional support encourages innovation, enhances business capabilities, and improves firm performance. However, empirical evidence also suggests that government support alone may not automatically translate into sustainable entrepreneurial outcomes because entrepreneurs differ considerably in their ability to utilise available resources effectively (Naldi et al., 2021). In many cases, financial assistance and digital programmes remain underutilised due to inadequate technological readiness and limited digital competencies among entrepreneurs. This indicates that government support may require complementary mechanisms to achieve its intended impact on business sustainability.

One such mechanism is digital financial literacy, which has become increasingly important in the era of digital entrepreneurship. Digital financial literacy refers to the knowledge, skills, confidence, and competencies required to access, evaluate, and utilise digital financial services safely and effectively (Nizam et al., 2025). Entrepreneurs possessing high levels of digital financial literacy are better equipped to evaluate financial products, manage digital transactions securely, assess financial risks, and make informed investment decisions. Moreover, digital financial literacy enables entrepreneurs to understand emerging financial technologies and integrate them into business processes, thereby enhancing operational efficiency and strategic decision-making (Kang et al., 2024). Conversely, entrepreneurs with limited digital financial literacy may experience greater uncertainty, perceive higher risks, and demonstrate lower willingness to adopt digital financial innovations despite the availability of government support and technological infrastructure (Yanto et al., 2022). Therefore, strengthening digital financial literacy represents a fundamental prerequisite for accelerating digital transformation among MSMEs.

Within this context, i-FinTech adoption has emerged as a promising technological pathway for enhancing sustainable entrepreneurship. Unlike conventional financial technologies, i-FinTech provides financial solutions that comply with Islamic principles while simultaneously improving accessibility, transparency, and operational

efficiency (Hamilton & Hakro, 2025). Through digital Islamic financing, crowdfunding platforms, peer-to-peer financing, digital payments, and other innovative financial services, entrepreneurs can obtain funding more efficiently, improve cash flow management, reduce transaction costs, and expand business opportunities. For Bumiputera entrepreneurs, who often demonstrate a strong preference for Shariah-compliant financial products, i-FinTech represents an important mechanism for promoting financial inclusion and supporting long-term entrepreneurial development (Hasan et al., 2024). Consequently, entrepreneurs who successfully adopt i-FinTech may achieve greater business resilience, improved financial management, and enhanced capacity to sustain their enterprises in highly competitive markets.

Although previous studies have examined government support, digital financial literacy, FinTech adoption, and entrepreneurial performance independently, several important research gaps remain. First, much of the existing literature focuses on conventional FinTech adoption rather than i-FinTech, despite Malaysia's position as one of the world's leading Islamic finance ecosystems. Second, previous studies have predominantly investigated direct relationships between government support and business performance or between digital financial literacy and FinTech adoption, providing limited understanding of the underlying mechanisms that explain how institutional support and entrepreneurial capabilities ultimately contribute to sustainable entrepreneurship. Specifically, empirical evidence examining the mediating role of i-FinTech adoption remains scarce, particularly within the context of Malaysian Bumiputera MSMEs. Third, many prior studies have emphasised financial performance or technology adoption outcomes while paying relatively limited attention to sustainable entrepreneurship, which incorporates economic, social, and environmental dimensions of long-term business success (Muñoz & Cohen, 2018). These gaps suggest that existing knowledge remains fragmented and insufficient for explaining how government support and entrepreneurial competencies interact through digital financial technologies to strengthen sustainable entrepreneurial outcomes.

Addressing these gaps is particularly important as Malaysia continues to accelerate its digital transformation agenda while promoting inclusive and sustainable economic development. Understanding whether government support and digital financial literacy encourage sustainable entrepreneurship directly or indirectly through i-FinTech adoption can provide valuable insights into the effectiveness of current entrepreneurial development strategies. If i-FinTech adoption functions as a significant mediating mechanism, policymakers may need to complement financial assistance programmes with initiatives that strengthen entrepreneurs' digital financial capabilities and increase awareness of Shariah-compliant digital financial services. Such integrated strategies could improve the utilisation of government resources while accelerating digital entrepreneurship among Bumiputera MSMEs.

Accordingly, this study examines the mediating role of i-FinTech adoption in the relationships between government support, digital financial literacy, and sustainable entrepreneurship among Malaysian Bumiputera MSMEs. Specifically, the study investigates the influence of government support and digital financial literacy on i-FinTech adoption, examines the effect of i-FinTech adoption on sustainable entrepreneurship, and evaluates whether i-FinTech adoption mediates the relationships between the independent variables and sustainable entrepreneurship. By integrating institutional support, entrepreneurial capability, and digital financial innovation within a single conceptual framework, this study contributes to the growing body of knowledge on digital entrepreneurship and i-FinTech.

LITERATURE REVIEW

Sustainable Entrepreneurship

Sustainable entrepreneurship has emerged as a significant research domain that integrates entrepreneurial activities with the broader objectives of sustainable development. For MSMEs, sustainable entrepreneurship involves maintaining business continuity while adapting to technological changes, evolving customer demands, and economic uncertainties. Jafari-Sadeghi et al. (2022) argued that MSMEs possessing superior knowledge, technological capabilities, and innovation orientation are more capable of sustaining competitive advantage under dynamic market conditions. Similarly, Kraus et al. (2022) highlighted that digital transformation has

become an essential driver of sustainable entrepreneurship by enabling firms to improve operational efficiency, customer engagement, and resource optimisation.

Within the Malaysian context, sustainable entrepreneurship has become increasingly important as the government seeks to strengthen the resilience and competitiveness of Bumiputera MSMEs through digitalisation, innovation, and financial inclusion initiatives. Nevertheless, many Bumiputera enterprises continue to face resource constraints, inadequate technological capabilities, and limited access to formal financing, which hinder long-term business sustainability (SME Corp. Malaysia, 2025). These challenges underscore the importance of identifying organisational capabilities and external support mechanisms that facilitate sustainable entrepreneurial development. Recent empirical evidence further demonstrates that entrepreneurs possessing stronger digital capabilities and financial competencies are more likely to achieve sustainable business outcomes through the effective utilisation of digital financial technologies such as i-FinTech (Abu Basar et al., 2024). Understanding these determinants is particularly important for developing economies such as Malaysia, where digital transformation and Islamic financial innovation are increasingly recognised as catalysts for sustainable MSME development.

Government Support and Sustainable Entrepreneurship

Government support encompasses a wide range of interventions, including financial assistance, grants, subsidised financing, tax incentives, entrepreneurship training, advisory services, regulatory facilitation, and innovation support (Ismail et al., 2023). Empirical evidence consistently demonstrates that government support positively influences firm growth, innovation capability, and business sustainability. For example, Alshanty and Emeagwali (2019) found that government assistance enhances SMEs' innovation performance by improving access to financial and knowledge resources. More recently, Ismail et al. (2023) reported that institutional support significantly improves SME resilience by facilitating technology adoption and strengthening entrepreneurial capabilities. Similarly, Pham et al. (2023) observed that government-led digitalisation programmes encourage SMEs to adopt innovative technologies, resulting in greater operational efficiency and long-term competitiveness. These findings suggest that government support extends beyond financial assistance by fostering an ecosystem that enables firms to adapt to technological change and sustain competitive advantage.

Nevertheless, previous studies have reported inconsistent findings regarding the effectiveness of government support. Naldi et al. (2021) argued that financial incentives alone are insufficient to generate sustainable entrepreneurial outcomes if entrepreneurs lack the capabilities to utilise available resources effectively. For Malaysian Bumiputera MSMEs, institutional initiatives that integrate financial assistance with digital transformation programmes can improve entrepreneurial resilience and support sustainable value creation. Therefore, government support is expected to positively influence sustainable entrepreneurship by creating favourable institutional conditions that enable entrepreneurs to achieve economic, social, and technological sustainability. Hence, the following hypothesis is suggested.

H₁: Government support has a positive and significant effect on sustainable entrepreneurship among Malaysian Bumiputera MSMEs

Digital Financial Literacy and Sustainable Entrepreneurship

Digital financial literacy refers to the knowledge, skills, confidence, and competencies required to access, evaluate, and utilise digital financial services effectively and securely (Nizam et al., 2025). Digital financial literacy incorporates the ability to navigate digital payment systems, online banking, mobile financial applications, electronic financing platforms, and cybersecurity practices. Recent empirical evidence indicates that entrepreneurs with higher levels of digital financial literacy are better equipped to adopt innovative financial technologies, improve financial management, and strengthen business resilience (Widyastuti et al., 2024). Likewise, Lyons et al. (2023) found that digital financial literacy improves entrepreneurs' access to formal financial services and promotes sustainable business practices through more efficient financial decision-making. In developing economies, digital financial literacy has also been associated with increased entrepreneurial innovation, financial inclusion, and firm survival (Rahayu et al., 2022).

Despite these findings, many MSMEs continue to exhibit low levels of digital financial literacy, limiting their capacity to benefit from digital financial innovations and government digitalisation initiatives (Tandilino et al., 2025). For Malaysian Bumiputera MSMEs, inadequate digital financial capability may hinder entrepreneurs' ability to utilise Islamic digital financial services that support business sustainability. Therefore, entrepreneurs possessing stronger digital financial literacy are expected to achieve greater sustainable entrepreneurship through improved financial capability, innovation, and strategic decision-making. Hence, the following hypothesis is assumed.

H₂: Digital financial literacy has a positive and significant effect on sustainable entrepreneurship among Malaysian Bumiputera MSMEs

Government Support and i-FinTech Adoption

Government support plays a crucial role in facilitating the adoption of financial technologies by creating a conducive institutional environment that reduces uncertainty and encourages innovation. In Malaysia, various initiatives introduced by the government have been designed to accelerate the adoption of digital financial technologies among MSMEs. Previous studies consistently demonstrate that government support positively influences FinTech adoption by improving entrepreneurs' access to financial resources, digital infrastructure, and technical knowledge (Pham et al., 2023). Similarly, AlNawayseh (2024) reported that institutional support enhances entrepreneurs' confidence in using FinTech by reducing perceived risks and strengthening trust in digital financial systems. Within Islamic finance, government commitment to developing Malaysia as a global Islamic financial hub has further accelerated the development of Shariah-compliant digital financial services, creating greater opportunities for Bumiputera entrepreneurs to access innovative financing solutions. Nevertheless, government support does not automatically guarantee technology adoption. The effectiveness of institutional initiatives depends on entrepreneurs' awareness, technological readiness, and willingness to utilise available digital financial services. Therefore, institutional support should be viewed as an enabling mechanism that encourages i-FinTech adoption by reducing structural barriers and promoting a supportive digital entrepreneurial ecosystem. This study suggests the following hypothesis.

H₃: Government support has a positive and significant effect on i-FinTech adoption among Malaysian Bumiputera MSMEs

Digital Financial Literacy and i-FinTech Adoption

While technological infrastructure provides opportunities for innovation, entrepreneurs require adequate financial knowledge and digital competencies to evaluate, trust, and effectively utilise these technologies. Hasan et al. (2024) found that entrepreneurs with stronger digital financial competencies demonstrate significantly higher intentions to adopt Islamic financial technologies due to greater understanding of digital financial products and lower perceptions of financial risk. Likewise, Morgan et al. (2019) argued that digital financial literacy enhances financial confidence, enabling entrepreneurs to integrate digital payment systems, mobile banking, and online financing into daily business operations. Similar findings by Shaikh et al. (2023) indicated that digital literacy positively influences FinTech adoption by improving users' perceived usefulness and trust in digital financial platforms. For Malaysian Bumiputera MSMEs, digital financial literacy is particularly important because i-FinTech services involve both technological and Shariah-compliance considerations. Entrepreneurs who possess sufficient digital financial knowledge are more likely to recognise the benefits of Islamic digital financial services and integrate them into business activities. Therefore, digital financial literacy is expected to facilitate i-FinTech adoption by strengthening entrepreneurs' capability to utilise digital financial innovations effectively. This study predicts the following hypothesis.

H₄: Digital financial literacy has a positive and significant effect on i-FinTech adoption among Malaysian Bumiputera MSMEs

i-FinTech Adoption and Sustainable Entrepreneurship

i-FinTech integrates digital innovation with Shariah-compliant financial principles to provide accessible, efficient, and ethical financial services (Hamilton & Hakro, 2025). It encompasses digital Islamic banking, Islamic crowdfunding, peer-to-peer financing, digital takaful, mobile payment systems, and blockchain-enabled Islamic financial services. These innovations improve financial inclusion, reduce transaction costs, enhance operational efficiency, and expand financing opportunities, thereby contributing to long-term entrepreneurial sustainability (Hassan et al., 2022). Empirical studies indicate that FinTech adoption enhances SMEs' financial management, cash-flow efficiency, innovation capability, and business resilience, particularly in resource-constrained environments (Gomber et al., 2021). Within Islamic entrepreneurship, i-FinTech further promotes ethical financing, financial inclusion, and sustainable business practices by providing Shariah-compliant alternatives that align with the values and financing preferences of Muslim entrepreneurs (Hasan et al., 2024). For Malaysian Bumiputera MSMEs, i-FinTech represents a strategic mechanism that facilitates access to capital while supporting efficient financial management and digital business transformation. Through digital Islamic financial services, entrepreneurs can diversify funding sources, improve financial transparency, and strengthen operational sustainability. Consequently, i-FinTech adoption not only enhances financial performance but also supports broader dimensions of sustainable entrepreneurship, including business continuity, resilience, and responsible value creation. Therefore, the following hypothesis is predicted.

H₅: i-FinTech adoption has a positive and significant effect on sustainable entrepreneurship among Malaysian Bumiputera MSMEs

Mediating Role of i-FinTech Adoption

Although government support and digital financial literacy have been widely recognised as important antecedents of sustainable entrepreneurship, their influence may not occur directly. Rather, these factors may exert their effects through entrepreneurs' adoption of digital financial technologies. From an Institutional Theory perspective, government support creates favourable conditions by providing financial incentives, regulatory facilitation, and digital infrastructure; however, entrepreneurs must transform these institutional resources into productive business practices through technology adoption (Scott, 2014). Likewise, the Resource-Based View suggests that digital financial literacy is a valuable organisational capability, yet its strategic value is realised only when entrepreneurs effectively apply this capability through i-FinTech adoption (Barney, 1991). Empirical evidence supports this indirect relationship, demonstrating that FinTech adoption mediates the effects of institutional support and digital capabilities on entrepreneurial performance and organisational resilience (AlNawayseh, 2024; Pham et al., 2023). However, limited research has specifically examined this mediating mechanism within the context of Islamic financial technology and Bumiputera MSMEs in Malaysia.

Given Malaysia's well-developed Islamic financial ecosystem and continued government emphasis on digital entrepreneurship, examining i-FinTech adoption as a mediating variable offers important theoretical and practical insights. Understanding this mechanism can explain how external support and entrepreneurs' internal capabilities are translated into sustainable entrepreneurial outcomes through the utilisation of Shariah-compliant digital financial services. Based on this discussion, the following hypotheses are predicted.

H₆: i-FinTech adoption mediates the relationship between government support and sustainable entrepreneurship among Malaysian Bumiputera MSMEs

H₇: i-FinTech adoption mediates the relationship between digital financial literacy and sustainable entrepreneurship among Malaysian Bumiputera MSMEs

Theoretical Framework

Figure 1 illustrates the conceptual framework and the present study adopts an integrated theoretical framework comprising Institutional Theory and the Resource-Based View (RBV) to explain the relationships among government support, digital financial literacy, i-FinTech adoption, and sustainable entrepreneurship. Institutional Theory posits that organisation operate within institutional environments consisting of formal

regulations, government policies, social norms, and support systems that shape organisational behaviour and strategic decisions (Scott, 2014). Government agencies play a significant institutional role by providing financial incentives, training programmes, regulatory frameworks, and digital infrastructure that reduce uncertainty and encourage innovation adoption. Within the Malaysian entrepreneurial ecosystem, initiatives introduced by the government exemplify institutional mechanisms designed to facilitate MSMEs' adoption of digital financial technologies. Accordingly, Institutional Theory provides the theoretical foundation for explaining the influence of government support on i-FinTech adoption and sustainable entrepreneurship.

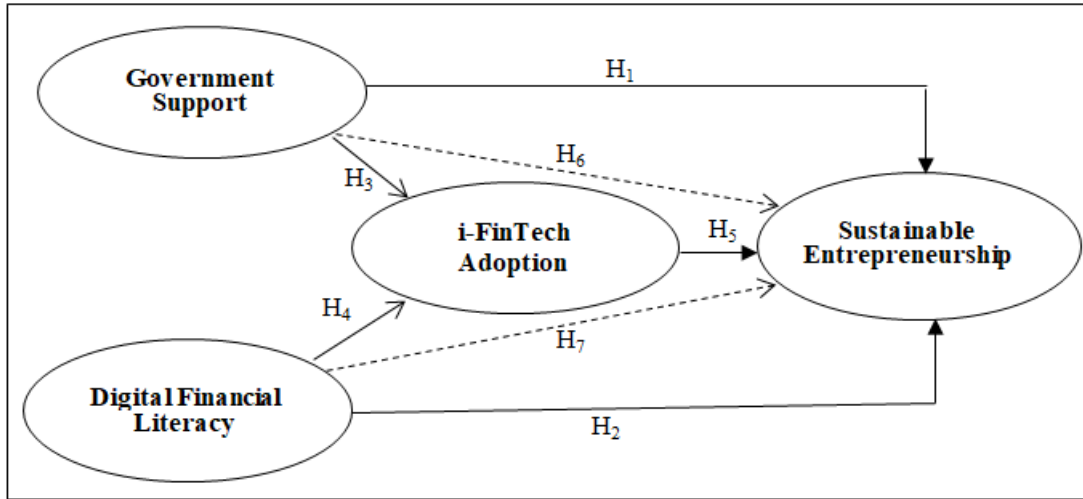


Figure 1: Conceptual Framework

The Resource-Based View (RBV) focuses on the internal capabilities that enable firms to achieve sustainable competitive advantage (Barney, 1991). RBV argues that valuable, rare, inimitable, and non-substitutable (VRIN) resources are fundamental drivers of long-term organisational performance. In the context of digital entrepreneurship, digital financial literacy represents an intangible strategic resource that enables entrepreneurs to understand digital financial services, evaluate financial risks, utilise financial technologies effectively, and make informed business decisions. Entrepreneurs possessing superior digital financial literacy are more capable of leveraging i-FinTech solutions to improve financial management, increase operational efficiency, and strengthen organisational resilience. Contemporary research increasingly recognises digital capabilities as strategic resources that support innovation, digital transformation, and sustainable business growth (Kraus et al., 2022; Teece, 2018). Therefore, RBV provides an appropriate theoretical explanation for the relationship between digital financial literacy and sustainable entrepreneurship.

The integration of these complementary theories extends existing entrepreneurship literature by demonstrating that sustainable entrepreneurial development depends on the interaction between institutional support, entrepreneurial capabilities, and digital technology utilisation rather than any single factor operating independently. Accordingly, the present study proposes that i-FinTech adoption serves as a key mediating mechanism through which government support and digital financial literacy contribute to sustainable entrepreneurship among Malaysian Bumiputera MSMEs.

RESEARCH METHODOLOGY

Bumiputera owners of MSMEs from 14 states in Malaysia is regarded as the study's sample. Convenience sampling is used as a technique to gathers data by selecting participants depending on their availability (Hirose & Creswell, 2023). Between October and December 2025, 1,394 of the 1,400 distributed questionnaires were returned, yielding a 99% response rate. Six questionnaires were found to be partly completed after reviewing survey returned; as a result, they were removed from the total returned that could be analysed. Finally, there were 1,394 questionnaires were ultimately approved and included in the data analysis.

Survey Instruments

Pre-validated scales from previous literature were used to assess the constructs in this research, ensuring the efficacy of the contents. Appropriate modifications were made to align with the context of i-FinTech adoption among entrepreneurs, as shown in Table 1. There are five parts in the survey questionnaire. In addition to demographic data, the questionnaire measured government support, digital financial literacy, i-FinTech adoption, and sustainable entrepreneurship. Using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), the respondents were required to circle the scale number that corresponds to their agreement with the given statements. The final total for each scale is obtained by calculating the average score evaluated by the respondents. The use of a five-point Likert-scale format aligned with recommendations in the literature for balancing response precision with ease of interpretation (Alkharusi, 2022).

Table 1. Measurement of the Construct and its Sources

Constructs	Items	Source(s)
Government Support	5	Chen & Volpe (1998)
Digital Financial Literacy	7	Lyons & Kass-Hanna (2021)
i-FinTech Adoption	5	Chuang et al. (2016)
Sustainable Entrepreneurship	7	Ploum et al. (2018)

Data Analysis Method

A structural equation model (SEM) was employed, specifically the analysis of Partial Least Square (PLS) program to analyse the data. SEM has been employed for a relatively long time, and in recent years has gained a place as one of the most widely used statistical tools in certain areas of social science research (Hair et al., 2021). As stated by Kock (2023), one reason for this is because it offers great potential for furthering theory development. Basically, PLS-SEM is described as a statistical methodology that takes a confirmatory (hypothesis testing) approach to analyse proposed study frameworks. PLS-SEM tests the entire model, not just part of it. The complete model is therefore either accepted or rejected; in other words, the model either fits the data or does not.

In short, PLS-SEM was selected for this study for several reasons. First, it permits the operation of multiple indicators to measure constructs and to condense measurement errors by having multiple indicators for each latent construct (Vaithilingam et al., 2024). Second, it is able to assess causal relationships between multiple constructs concurrently (Hair et al., 2024). Third, SEM can generate awareness in the direction among study constructs, and to test how and to what degree constructs affect each other (Sarstedt et al., 2022). Basically, there are two phases in PLS-SEM. The first phase is known as the measurement model, which is tested using construct reliability, indicator reliability, convergent validity, and discriminant validity. On the other hand, the second phase is the structural model, which is measured using path analysis. This study followed Hair et al.'s (2021) recommendation whereby the assessment of the structural model was built on the results of the standard model estimation, the bootstrapping routine, and blindfolding procedure.

A method for deciding mediation effect was created by Zhao et al. (2010), who distinguished between three forms of mediation (competitive, complementary, and indirect-only mediation) and two types of non-mediation (direct-only and no-effect non-mediation). According to their arguments, two requirements must be met in order to support a hypothesised mediation relationship: (a) there must be a significant relationship between the independent and dependent variables via the mediator, and (b) zero cannot be included in the lower or upper levels of the 95% bootstrapped confidence interval (Hayes & Rockwood, 2016; Zhao et al., 2010).

FINDINGS AND DISCUSSION

The demographic profile reveals that there are more women entrepreneurs than men participated in this study whereby 61.4% of respondents were female and 38.6% were men. Furthermore, majority of the respondents (54.5%) had between 11 and 20 years of experience as an entrepreneur, while 23.9% of the respondents had more than 25 years of experience in running a business. According to the respondents' business income, the majority of them (60.2%) made less than RM300,000 each month, and a comparable percentage of them employed less than five people. This suggests that microbusiness owners make up the majority of respondents. In contrast, 21.6% of the respondents said their enterprise employs between 30 and 75 people, suggesting a sizable scale of their business. The majority of respondents (30.7%) said that their present place of business is an urban region, which is where SMEs are located. Lastly, the vast majority of respondents (63.6%) use i-FinTech tools.

Perception of Sustainable Entrepreneurship

This section presents the findings pertaining to the respondents' perceptions on sustainable entrepreneurship. One sample *t*-test was used to find whether the overall mean of perceived sustainable entrepreneurship is significantly different from or equal to a given constant. The mean score of 4.1461 for sustainable entrepreneurship in Table 2 is statistically significant at the 1% level and suggests that the respondents perceived themselves as sustainable entrepreneurs.

Table 2. Perception of Sustainable Entrepreneurship

	n	Mean	One Sample T-Test	
			<i>t</i> -statistic	<i>p</i> value
Sustainable Entrepreneurship	1394	4.4161	68.395	.000***

Note: Result is significantly different at *** 1% level and ** 5% level, respectively, using two-tailed tests.

In general, majority of respondents said they were adept at seeing chances for sustainable growth. They disclosed that they were able to maintain business continuity while adapting to technological changes, evolving customer demands, and economic uncertainties. This supports a claim made by a number of scholars that, entrepreneurs are crucial in guiding corporate operations towards survivability (O'Neill et al., 2021). Furthermore, respondents expressed a solid consensus on their capacity to oversee the survivability performance of their business and willing to take the lead in enhancing their practices by incorporating sustainability norms, goals, aims, and principles. This outcome is in line with Chandna and Salimath (2018), who discovered that sustainable entrepreneurs should take into account elements that foster an inventive atmosphere and, as a consequence, encourage entrepreneurial activity.

PLS-SEM Results

The study's measurement model was examined using PLS-SEM software through SmartPLS 4.0 (Figure 2). According to Henseler et al. (2021), PLS-SEM consists of two-step processes. Initially, the measurement model assessment specifies the examination of individual item reliability, ascertaining the internal item consistency, ascertaining the convergent validity and finally the discriminant validity of the model. After the assessment of measurement model, next step is to analyse the structural model through various findings such as checking the significance of the path coefficients, examining the explained variation of endogenous constructs which is reflected through R^2 of the model, determining the effect size of the model, and predictive relevance or Q^2 as well.

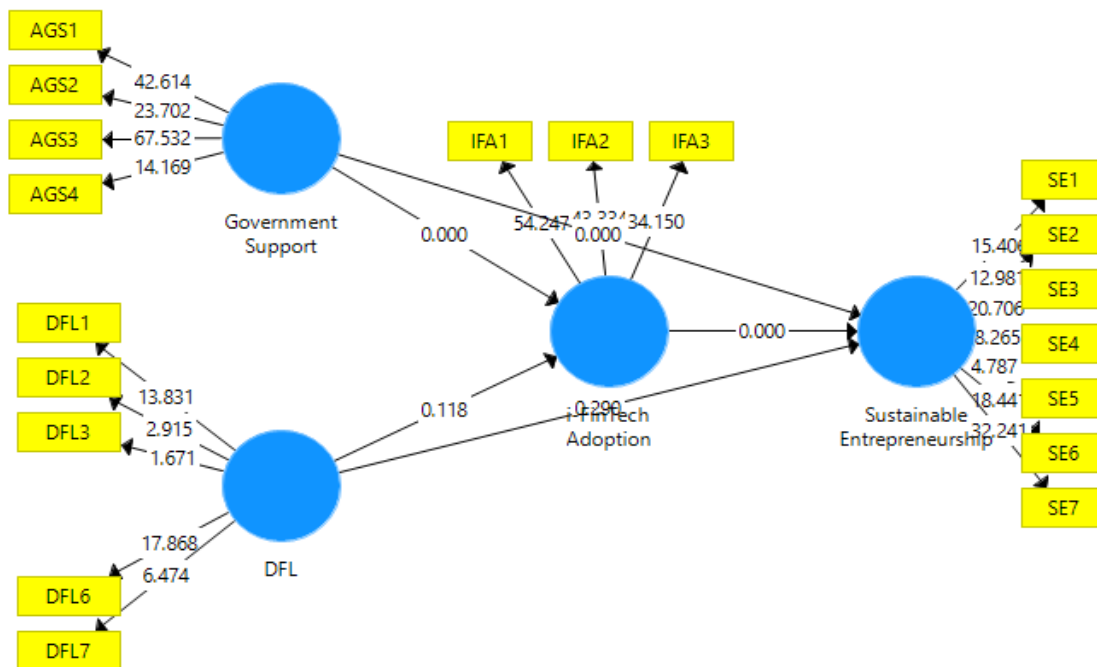


Figure 2. Reflective Measurement Model

Assessment of Measurement Model

The measurement model's findings are displayed in Table 3. The statistics must adhere to the five acceptable standards in order for the data to be considered reliable and valid. First, according to Ramayah et al. (2018), every factor loading should be more than 0.7. Second, the average variance extracted (AVE) of each latent variable should be greater than 0.5 (Hair et al., 2022); third, composite reliability (γ) should be considerably more than 0.7 (Ramayah et al., 2018). Table 3 shows that the composite reliability and factor loadings for every item were more than 0.7, except for items GS5, DFL4, DFL5, IFA4, and IFA5. Therefore, these five items are deleted from their respective construct. After removal of items with low factor loading values, the findings provide good evidence to claim that there is no issue for the internal loading for each of the items as reflected under Table 3.

Table 3. The Measurement Model Statistics

Indicators & Items	Loading	AVE	γ	α	VIF
Government Support		0.779	0.934	0.904	2.964
GS1: The financial assistance offered by the government has led to an improvement in my business.	0.914				
GS2: The financial assistance offered by the government has increase my access to latest digital financial technology.	0.861				
GS3: The financial assistance offered by the government has enabled me to pay the business bills.	0.947				
GS4: Assistance under the technology digitization policy provided by the government is in line with my business needs.	0.803				
GS5: The technology digitization policy provided by the	Deleted				

government is in line with the survival of my business.					
Digital Financial Literacy		0.756	0.795	0.750	2.856
DFL1: I know about the specific purpose and use of digital financial software available.	0.834				
DFL2: I know where to seek digital financial information and advice.	0.886				
DFL3: I manage day-to-day finances of the business using digital financial software.	0.871				
DFL4: I can choose the right digital financial software for a specific purpose (e.g: payments, remittances, borrowing).	Deleted				
DFL5: I able to choose a reliable digital financial software service provider.	Deleted				
DFL6: I can detect fraud related to digital finance (e.g.: identity theft, malwares, phishing attacks).	0.823				
DFL7: I can avoid the traps of fraud and scammers to protect the data and financial resources of the business.	0.730				
i-FinTech Adoption		0.866	0.951	0.923	2.298
IFA1: I think it is very easy to find information about the use of i-FinTech services anytime and anywhere.	0.922				
IFA2: I like the idea of using i-FinTech services in business.	0.942				
IFA3: I think i-FinTech services are fun and I'm not afraid to make mistakes.	0.929				
IFA4: I would like to use the services provided by i-FinTech for all business matters.	Deleted				
IFA5: I want to use i-FinTech services to grow my business in the SME market.	Deleted				
Sustainable Entrepreneurship		0.641	0.926	0.923	2.747
SE1: I am willing to take the initiative to make improvements in my business practices based on norms, values, and principles of sustainability.	0.829				
SE2: I know about what is seen as "good sustainability practice" in my business.	0.830				
SE3: I know how to explain the decisions my business has made regarding sustainability.	0.806				
SE4: I do not agree with unsustainable ways of working in my business.	0.798				

SE5: I am very good at identifying opportunities for sustainable development.	0.727				
SE6: I know how social, environmental or community challenges can be turned into sustainability opportunities for my business.	0.831				
SE7: I can monitor the sustainability performance of my business.	0.862				

Note: AVE = Average Variance Explained; γ = Composite Reliability; α = Cronbach's Alpha; * $p < .05$.

Further, sustainable entrepreneurship construct has the lowest AVE value of 0.641, while Cronbach's alpha values for all constructs are higher than 0.7. Fourth, the variance inflation factors (VIF) statistics should be examined in order to verify the multicollinearity between each independent variable. Hair et al. (2022) stated that the model's VIF values ought to be less than 5. Table 3 shows that none of the VIF values exceeded 5. In short, there is no serious multicollinearity issue. Overall, the findings of this measurement model show that the items are valid, reliable, and have a sufficient level of internal consistency.

Lastly, according to Hair et al. (2022), the goal of the discriminant validity evaluation is to attest that a reflective concept has the strongest correlations with its indicators in the PLS path model. The Fornell-Larcker criteria has long been a widely used study to evaluate discriminant validity. Comparing the square root of the AVE of each construct with its connection with other constructs is equivalent to comparing the AVE with the squared correlations of the constructs when evaluating discriminant validity (Hair et al., 2022). The reflecting constructs' square roots of the AVE are all greater than their correlations with the other latent variables in the route model, as seen in Table 4. The results of this study demonstrate that the constructs are attaining discriminant validity.

Table 4. Fornell-Larcker Criterion Discriminant Analysis for Measurement Model

	GS	DFL	IFA	SE
GS	0.883			
DFL	0.647	0.850		
IFA	0.601	0.509	0.931	
SE	0.872	0.646	0.785	0.801

Note: The diagonal (bold) value is a square root of the AVE of each latent variable, and the element off-diagonal value is the inter-correlation value between latent variables.

GS denotes Government Support; DFL denotes Digital Financial Literacy; IFA denotes i-FinTech Adoption, SE denotes Sustainable Entrepreneurship

Assessment of Structural Model

Once the reflective measurement model has been validated successfully, the PLS algorithm was conducted to compute the model parameter estimates (Cheung et al., 2024). Structural model assessment is used to determine whether the structural model's hypotheses are supported by the data in a particular study. This study evaluates the structural model in accordance with the recommendations of Hair et al. (2022).

Coefficient of determination (R^2) values of 0.75, 0.50, and 0.25, respectively, are typically used to signify considerable, moderate, or weak concerns in business (Hair et al., 2022). Table 5 shows the R^2 value for sustainable entrepreneurship is 0.881, which was considered as strong. This indicates that 88.1 percent of the

variance in the sustainable entrepreneurship can be justified by government support, digital financial literacy, and i-FinTech adoption. Meanwhile, the R^2 value for i-FinTech adoption is weak with a value of 0.386, indicating that 38.6 percent variations in this construct were explained by the variations in government support and digital financial literacy, respectively.

Table 5. Coefficient of Determination (R^2) Results

Endogenous Constructs	R^2	Remarks
i-FinTech Adoption	0.386	Weak
Sustainable Entrepreneurship	0.881	Strong

Note: Strong >0.75 ; Moderate >0.50 ; Weak >0.25 (Hair et al., 2022)

Table 6 displays the effect size (f^2), which quantifies the influence of a predictor construct on an endogenous construct. According to Ramayah et al. (2018), the f^2 values of 0.02, 0.15, and 0.35 correspond to small, medium, and large impacts on an endogenous construct, respectively. The f^2 values shows that government support ($f^2 = 1.544$) and i-FinTech adoption ($f^2 = 0.787$) constructs were having a significant large impact on sustainable entrepreneurship. On the other hand, the impact of government support ($f^2 = 0.207$) construct on the adoption of i-FinTech is moderate.

Table 6. Path Coefficients of Structural Model

H	Path Estimate	β	t-stat	p-value	f^2
H ₁	Government Support $\rightarrow$ SE	0.617	11.707	0.000***	1.544
H ₂	Digital Financial Literacy $\rightarrow$ SE	0.048	1.059	0.290 ^{NS}	0.011
H ₃	Government Support $\rightarrow$ i-Fintech Adoption	0.468	4.426	0.000***	0.207
H ₄	Digital Financial Literacy $\rightarrow$ i-Fintech Adoption	0.206	1.565	0.118 ^{NS}	0.040
H ₅	i-Fintech Adoption $\rightarrow$ SE	0.390	6.462	0.000***	0.787
H ₆	Government Support $\rightarrow$ i-Fintech Adoption $\rightarrow$ SE	0.183	3.838	0.000***	
H ₇	Digital Fin. Literacy $\rightarrow$ i-Fintech Adoption $\rightarrow$ SE	0.080	1.512	0.131 ^{NS}	

Note: NS = Not Significant; β = Standardized Beta Coefficient; f^2 = Effect Size

The causal relationships of the structural model are presented in Table 6. The result showed that government support positively and significantly influenced sustainable entrepreneurship ($\beta = 0.617$, t-statistic = 11.707, p -value $< .05^{***}$), thus supporting H₁. This finding suggests that institutional assistance in the form of financial incentives, entrepreneurship training, advisory services, digitalisation programmes, and policy support plays a crucial role in enhancing the long-term sustainability of Bumiputera MSMEs. Government interventions not only provide entrepreneurs with financial resources but also strengthen their resilience, innovation capability, and ability to adapt to changing market conditions. This is in consonance with research works done such as Ismail et al. (2023) and Pham et al. (2023), who reported that government support enhances SME competitiveness and sustainability by improving access to resources, facilitating innovation, and encouraging digital transformation.

In contrast, the study found that digital financial literacy did not significantly influence sustainable entrepreneurship ($\beta = 0.048$, t-statistic = 1.059, p -value $> .05^{NS}$) among Malaysian Bumiputera MSMEs. This

leads to rejection of H₂. This implies that, possessing knowledge and skills related to digital financial services does not automatically translate into sustainable business practices or long-term business success. Instead, entrepreneurs may require complementary organisational resources, technological capabilities, or actual utilisation of digital financial technologies before digital financial literacy can produce meaningful business outcomes. This finding is inconsistent with previous studies such as Lyons et al. (2023) and Rahayu et al. (2022), which found that higher digital financial literacy significantly improves entrepreneurial performance, financial inclusion, and business sustainability. A possible explanation for this discrepancy is that many Bumiputera MSMEs possess basic digital financial knowledge but have yet to effectively integrate this knowledge into strategic business operations.

The results further demonstrated that government support positively and significantly influenced i-FinTech adoption ($\beta = 0.468$, t -statistic = 4.426, p -value < .05^{***}), and therefore supporting H₃. This finding implies that government initiatives encourage Bumiputera MSMEs to adopt Islamic financial technologies. Such institutional support reduces financial and technological barriers while increasing entrepreneurs' confidence in adopting innovative financial solutions. The finding is consistent with AlNawayseh (2024) and Pham et al. (2023), who concluded that institutional support significantly enhances FinTech adoption among SMEs by improving technological readiness and reducing perceived risks. The result further reinforces the proposition of Institutional Theory, which emphasises that supportive institutional environments facilitate organisational innovation and technology adoption.

However, digital financial literacy did not significantly influence i-FinTech adoption ($\beta = 0.206$, t -statistic = 1.565, p -value > .05^{NS}), resulting in the rejection of H₄. This finding indicates that entrepreneurs with higher digital financial literacy are not necessarily more likely to adopt i-FinTech services. One plausible explanation is that knowledge does not automatically translate into behavioural intention or actual technology utilisation. While digital financial literacy equips entrepreneurs with the ability to understand digital financial products and services, the decision to adopt i-FinTech is also shaped by behavioural and psychological factors. Further, the finding may also reflect the distinction between knowledge acquisition and capability utilisation, as proposed by the Resource-Based View (Barney, 1991). Although digital financial literacy represents an important intangible organisational resource, Resource-Based View argues that resources create competitive advantage only when they are effectively deployed through complementary organisational capabilities. Entrepreneurs may understand digital financial services but lack the technological infrastructure, innovation capability, or organisational readiness required to transform that knowledge into practical i-FinTech adoption. Consequently, digital financial literacy alone may not generate technology adoption unless it is supported by broader organisational and institutional capabilities. This finding differs from those reported by Hasan et al. (2024) and Shaikh et al. (2023), who found that digital financial literacy significantly promotes FinTech adoption by increasing users' confidence, perceived usefulness, and financial decision-making capability. The discrepancy may be attributed to differences in research context and the maturity of the digital financial ecosystem.

It was also revealed that i-FinTech adoption positively and significantly influenced sustainable entrepreneurship ($\beta = 0.390$, t -statistic = 6.462, p -value < .05^{***}), thus supporting H₅. This result suggests that entrepreneurs who adopt Islamic digital financial technologies are better positioned to improve financial accessibility, optimise cash-flow management, reduce transaction costs, and enhance operational efficiency, all of which contribute to long-term business sustainability. Furthermore, i-FinTech facilitates access to Shariah-compliant financing alternatives, thereby supporting financial inclusion while promoting responsible and ethical entrepreneurial practices. This finding corroborates the work of Hasan et al. (2024) and Hassan et al. (2022), who reported that i-FinTech enhance SME competitiveness and sustainable business development by expanding access to innovative financial services.

With respect to the indirect relationships, the findings confirmed that i-FinTech adoption significantly mediated the relationship between government support and sustainable entrepreneurship ($\beta = 0.183$, t -statistic = 3.838, p -value < .05^{***}), thereby supporting H₆. Since both the direct and indirect effects were statistically significant, the mediation is classified as partial mediation. This result indicates that government support enhances sustainable entrepreneurship not only directly through institutional assistance but also indirectly by encouraging the adoption of i-FinTech. In other words, part of the effectiveness of government initiatives is realised because they facilitate

entrepreneurs' utilisation of i-FinTech, which subsequently improves business sustainability. This finding is consistent with AlNawayseh (2024) and Pham et al. (2023), who suggested that technology adoption serves as an important mechanism through which institutional support improves SME performance and competitiveness. The result further demonstrates that digital transformation is an important pathway through which government policies generate sustainable entrepreneurial outcomes.

Finally, i-FinTech adoption failed to establish mediation effect in the relationship between digital financial literacy and sustainable entrepreneurship ($\beta = 0.080$, t -statistic = 1.512, p -value > .05^{NS}), leading to the rejection of H₇. This implies that possessing digital financial knowledge does not necessarily encourage entrepreneurs to adopt i-FinTech or achieve sustainable entrepreneurial outcomes. Other factors, such as technological readiness, perceived usefulness, trust, religiosity, organisational capabilities, or management support, may play a more important role in facilitating i-FinTech adoption among Bumiputera MSMEs. This finding is broadly consistent with studies reporting that financial knowledge alone does not always lead to technology adoption unless accompanied by favourable institutional and behavioural conditions. It also highlights the importance of complementing digital financial literacy programmes with practical exposure, digital infrastructure, and targeted government initiatives to increase the adoption of i-FinTech among Bumiputera entrepreneurs.

CONCLUSION

The findings are expected to make several important contributions. First, it extends the sustainable entrepreneurship literature by integrating Institutional Theory and the Resource-Based View into a single conceptual framework to demonstrate how external institutional support, internal entrepreneurial capabilities, and technology adoption collectively influence sustainable entrepreneurship among Malaysian Bumiputera MSMEs. Second, this study advances existing literature by identifying i-FinTech adoption as an important explanatory mechanism linking institutional support to sustainable business development. Third, the study contributes to the digital financial literacy literature by demonstrating that digital financial literacy alone does not significantly influence either i-FinTech adoption or sustainable entrepreneurship. This finding challenges the commonly held assumption that increasing digital financial knowledge automatically translates into technology adoption and improved business sustainability. Instead, the results suggest that knowledge should be complemented by favourable institutional environments, practical digital capabilities, and supportive technological ecosystems before meaningful entrepreneurial outcomes can be realised. Consequently, the study provides new empirical evidence regarding the contextual role of digital financial literacy within emerging economies and Islamic entrepreneurial ecosystems.

From a practical perspective, the findings provide valuable implications for policymakers, entrepreneurship development agencies, financial institutions, and Bumiputera entrepreneurs. The significant influence of government support on both i-FinTech adoption and sustainable entrepreneurship highlights the importance of maintaining comprehensive government initiatives that extend beyond financial assistance. Policymakers should continue strengthening digitalisation grants, entrepreneurship training programmes, digital advisory services, and regulatory support that encourage MSMEs to integrate Islamic financial technologies into their business operations. The findings also suggest that entrepreneurship development programmes should place greater emphasis on practical exposure to i-FinTech applications rather than focusing solely on improving digital financial literacy. Government agencies may consider introducing hands-on training programmes, digital mentoring initiatives, and strategic partnerships with Islamic financial institutions to improve entrepreneurs' confidence and readiness to adopt i-FinTech solutions.

Limitations and Recommendations for Future Research

While this study provides valuable theoretical and practical insights, several limitations should be acknowledged. First, this study focused exclusively on Bumiputera MSMEs in Malaysia, which may limit the generalisability of the findings to other entrepreneurial groups or national contexts. Malaysia possesses a unique institutional environment and one of the world's most developed Islamic financial ecosystems, which may differ substantially from those of other countries. Consequently, future research should validate the proposed framework among non-Bumiputera entrepreneurs, larger enterprises, and MSMEs operating in different industries or countries to

determine whether the observed relationships remain consistent across different institutional and cultural settings. Second, although the proposed model explained a substantial proportion of the variance in sustainable entrepreneurship, entrepreneurial sustainability is influenced by numerous organisational, behavioural, technological, and environmental factors. Future studies should therefore consider incorporating additional variables, such as innovation capability, digital capability, organisational readiness, technology readiness, trust in digital financial services, perceived cybersecurity risk, or entrepreneurial resilience, to develop a more comprehensive understanding of sustainable entrepreneurship within the digital economy.

Third, the present study employed convenience sampling due to the absence of a complete sampling frame for Bumiputera MSME owners, which may limit the representativeness of the sample and restrict the generalisability of the findings. Future studies are encouraged to employ probability-based sampling techniques, such as stratified or systematic random sampling, to improve external validity. Fourth, this study adopted a cross-sectional research design, limiting the ability to establish causal relationships. Future studies are therefore encouraged to employ longitudinal research designs to examine the dynamic effects of government support and digital financial literacy on i-FinTech adoption and sustainable entrepreneurship over different stages of business development. Finally, this study relied solely on self-reported questionnaire data, which may introduce common method bias and social desirability bias. Future research could overcome this limitation by adopting mixed-methods approaches, incorporating qualitative interviews or case studies, or triangulating survey responses with objective business indicators such as sales growth, profitability, business survival rates, or actual i-FinTech usage records. Such approaches would provide richer insights into entrepreneurs' experiences and strengthen the robustness of empirical findings.

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Authors' Contributions

This work was done in collaboration among all five authors. Each of the authors managed their own parts as distributed in the earlier stage of research, but all the authors have proofread and approved the final manuscript.

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