FACTORS AFFECTING THE ADOPTION OF FINTECH AND ITS IMPACT ON SUSTAINABILITY PERFORMANCE

Sri Astuti*,
Doctoral Program, Faculty of Economics and Business, Universitas Lampung, Indonesia
Rindu Rika Gamayuni,
Doctoral Program, Faculty of Economics and Business, Universitas Lampung, Indonesia
Agrianti Komalasari
Doctoral Program, Faculty of Economics and Business, Universitas Lampung, Indonesia

Corresponding Email: astuti@polinela.ac.id

Highlight

Financial literacy, government support, user innovativeness, and trust—rather than perceived usefulness or ease of use—drive fintech adoption among Indonesian MSMEs, which in turn significantly enhances their economic, social, and environmental sustainability performance.

Abstract

This study seeks to examine the factors influencing the adoption of financial technology (fintech) and its effects on the sustainable performance of Micro, Small, and Medium Enterprises (MSMEs). It combines the Technology Acceptance Model (TAM) with the Triple Bottom Line (TBL) framework to explore how financial literacy (FL), government support (GS), perceived usefulness (PU), perceived ease of use (PEOU), user innovativeness (UI), and trust (T) towards fintech adoption (FA), its impact MSME sustainability. Using a quantitative survey design, the research targets MSME participants involved in the 2024 MSME Level Up Programme across 19 cities and districts in Java, Sumatra, and Bali. Data were analyzed through PLS-SEM. The findings reveal that FL and GS have a significant effect on UI, while PU and PEOU do not have a significant effect on FA. FL, UI, GS, and T have a significant effect on FA, and FA has a positive effect on the sustainability performance of MSMEs, covering economic, social, and environmental dimensions. These results show how important fintech can be in boosting MSME sustainability, especially by improving access to finance, making operations more efficient, and encouraging more responsible business practices. This study also adds to the literature by bringing together technology adoption and sustainability perspectives, while offering useful insights for policymakers, financial institutions, and MSME stakeholders to support sustainable digital transformation.

Keywords

fintech adoption, Indonesia MSMEs, extended TAM, Sustainable Performance, SEM-PLS.

Introduction

The swift advancement of financial technology (fintech) has transformed the global financial system, opening up new avenues for improved efficiency, wider access, and enhanced transparency in financial services. MSMEs involved in the economic development of countries like Indonesia (OECD, 2022), making fintech an essential tool for accelerating digital transformation in this sector. MSMEs may benefit from fintech in many ways, including better financial management, enhanced operational efficiency, and expanded access to new markets. Fintech includes tools like online lending platforms, digital payment systems, and integrated financial apps. Regardless of these benefits, fintech acceptance among Indonesian MSMEs is still varied, depending on factors including financial capacity, technical preparedness, institutional backing, and user confidence (Campanella et al., 2025).

Financial literacy, government backing, innovative behavior, and perceived digital trust are key factors that influence small business technology adoption choices, according to (Venkatesh et al., 2023; T. Kim et al., 2020). When it comes to developing-world fintech adoption, however, empirical results on the TAM two primary constructs—PU and PEOU—remain discordant. Furthermore, there is a lack of literature investigating the direct correlation between fintech and sustainability performance that make up TBL. This is even though fintech is often cited as a tool that helps businesses succeed. With lawmakers stressing the need for inclusive and sustainable digital transformation policies to bolster MSME resilience, this gap is taking on added significance.

The combined impact of behavioral, institutional, and technical elements on the adoption of fintech and its consequences on sustainable performance must be understood in light of these gaps. An essential empirical setting for this kind of study is Indonesia, with its varied MSME ecosystem spanning several regions and industries. There is a great opportunity to improve our theoretical and practical knowledge of digital financial inclusion by investigating the unexplored connection between fintech adoption and sustainability results. Consequently, the

purpose of this study is to investigate how adopting fintech affects the sustainability performance of MSMEs in Indonesia, and how factors such as FL, GS, UI, PU, PEOU, and T affect FA. To provide a more complete picture of digital transformation in MSMEs, this research brings together behavioral models, institutional elements, and sustainability frameworks. What makes this study unique is the all-encompassing approach used to track the variables that influence MSMEs' adoption of fintech and how those characteristics relate to their sustainability performance across several dimensions. In order to help policymakers, financial institutions, and digital service providers advance sustainable financial inclusion, this study primarily contributes empirical evidence showing that the adoption of fintech strengthens the sustainability of MSMEs in all three areas: economics, society, and the environment.

2.Literature Review

2.1 Fintech Adoption and Sustainability Performance

According to the TBL framework, which assesses the ways in which companies help preserve the environment and foster social development, FA is found to positively influence MSME sustainability performance (Cheng & Qu, 2020). Although some of the literature highlights the potential of fintech to support sustainable development (Abdul-rahim et al., 2022; Meiling et al., 2021; Tok & Heng, 2022), but there is still a lack of evidence connecting the three dimensions of sustainability (Al Doghan & Chong, 2023; Najib et al., 2021; Hiew et al., 2024). Previous studies has shown that fintech may increase accessibility to capital, promote innovation, lessen the likelihood of default, and boost profits. (Barefoot, 2020; Liu et al., 2021), while also supporting business efficiency, reducing operational uncertainty (Arslan et al., 2022), and contributing to environmental, social, and economic sustainability (Al Doghan & Chong, 2023; Siddik et al., 2023), in line with Utami & Sitanggang, (2021) research, which states that FA has beneficiary impact on the performance of MSMEs.

2.2 User innovativeness

According to individual innovation theory, which posits that individuals differ in their receptivity to change and propensity to embrace new technology, UI refers to an individual’s propensity to come up with and implement novel ideas (Hasan et al., 2024; Lontchi et al., 2023) To be innovative as a user in this research is to be open to trying new things, using new tools, and interacting with digital financial services. Because it helps to establish if MSME practitioners' creative behavior impacts their adoption of digital financial services, it remains an essential variable, consistent with Setiawan et al. (2021), who argue that user innovativeness enables fintech services to be tailored to personal or business needs. Prior studies show mixed results: Agyei et al., (2020) found a positive link between UI and FA, while Russo (2023) reported no significant direct effect on FA.

2.3 Perceived usefulness

PU as defined in the TAM (Singh et al., 2020), means how much someone believes a technology will help improve their performance. This concept has been shown to strongly influence user behavior (Adams et al., 1992; Venkatesh et al., 2016) It is a key component in technology adoption decisions (Venkatesh & Morris, 2012; Chen & Barnes, 2007), throughout the process of influencing people's decisions to utilize new technologies. Empirical evidence also shows that fintech adoption among MSMEs is largely driven by PU as a key determining factor (Setiawan et al., 2021; Singh et al., 2020; Ambarwati et al., 2024). However, other research indicates that in certain contexts, different factors may play a more dominant role; for example, Shahzad et al., (2022) and Hu et al., (2019) argue that additional determinants can more strongly influence adoption intentions, while Kumar & Rani, (2023) find that in mobile banking, perceived risk and perceived value may outweigh perceived usefulness.

2.4 Perceived ease of use

TAM explain that when people think a technology will be easy to use and would lead to greater performance in the long run, that's how easy it is seen to be (Singh et al., 2020). PEOU greatly influences FA (Venkatesh et al., 2016). Findings from (B. Setiawan et al., 2021; D. P. Nugraha et al., 2022; Ambarwati et al., 2024) and Krah et al., (2024) demonstrate that fintech adoption among MSMEs is favorably impacted by PEOU.

2.5 Financial literacy

A person or organization is considered financially literate if they can understand basic financial ideas and products and use this knowledge to make sound financial choices. (Paulus & Murdapa, 2016). Because it helps younger generations improve their financial knowledge and management and allows MSMEs to utilize fintech safely and efficiently, it remains important in our research. MSMEs can improve their financial performance by managing their finances more skillfully when they possess strong financial knowledge and abilities (Widyastuti et al., 2025). Evidence suggests that FL has a direct effect on FA and a positive effect on sustainability performance (Siddik et al., 2023). Strong FL is also associated with more innovative use of fintech (Huston, 2010; X. Li et al., 2024), which can have an indirect effect on adoption. This is borne up by empirical research, Lontchi et al., (2023) noted a positive

and significant correlation between fintech and FL, and Ambarwati et al., (2024) verified that FL directly boosts the adoption of fintech. Users may not necessarily need high levels of financial knowledge to embrace fintech, according to conflicting findings from Saadah & Setiawan, (2024), which argues that FL has a weaker-than-expected impact.

2.6 Government support

GS support the financial technology sector because it promotes fintech implementation by MSMEs via empowerment programs, laws, incentives, and policies that guarantee fair and safe access to technology (Zhao et al., 2024). Institutional theory postulates that societal norms, technical trends, and government laws all contributes to influencing the pace of FA (da Silva et al., 2026). The role of government assistance in fostering FA has been continuously highlighted in empirical investigations. According to Goo, (2020), there is beneficiary link between GS and FA. Other studies have found the same thing: that active government involvement strengthens fintech growth and reduces uncertainty (Marakarkandy et al., 2017; Hu et al., 2019; Dieter, 2010; Jahanmir & Cavadas, 2018). Government support for fintech has an indirect impact on adoption via user innovation, according to D. P. Nugraha et al., (2022) and B. Setiawan et al., (2021), discover that it has a direct effect on the behavioral intention to embrace fintech among SMEs. According to research by Bangguiyac, G. D., & Castañeda, (2025) government support significantly and favorably affects MSMEs' business performance. Study by Akhtar et al., (2024) shows that students at universities like use fintech when the government backs the industry.

2.7 Trust

Trust is a core pillar in financial services, and as confidence in traditional financial institutions has declined, fintech has stepped in to fill the gap (Hua & Huang, 2020). Although trust is not explicitly included in the core variables of TAM, it can be integrated through PU and PEOU. Prior findings consistently show that higher trust in fintech providers enhances MSMEs' intention and willingness to adopt fintech (Judijanto et al., 2024; Primadasa et al., 2021; Broby, 2021; Saadah & Setiawan, 2024; Setiawan et al., 2021). However, contrasting evidence from Okat, (2024) indicates that trust in banks does not consistently influence fintech adoption across different product categories.

1. Hypothesis Development

FL can enhance user innovation among MSMEs that increasingly rely on fintech for transactions, cash flow management, and access to financing. Individuals with strong financial knowledge more innovative in exploring and adopting fintech solutions, as supported by studies showing that financial literacy encourages creative use of digital financial services to improve business performance (Arner, 2016; Setiawan et al., 2021; X. Li et al., 2024; Huston, 2010).

H_1 FL affects UI

Government support for user innovation refers to policies, regulations, incentives, and facilities that encourage individuals and businesses—especially MSMEs—to adopt and develop technological innovations such as fintech. This support accelerates fintech adoption and enhances users' ability to innovate in managing their financial and business activities. Empirical studies show that MSMEs become more innovative when supported by financial incentives, digital literacy programs, or technology subsidies (Saadah & Setiawan, 2024; Putra et al., 2023; Tan,et al., 2022). Strong government backing also fosters positive attitudes toward fintech and enhances user creativity in utilizing digital financial services (Q. Chen, 2024; Almagrashi et al., 2023). Thus, government support significantly strengthens user innovation and encourages wider and more effective fintech adoption among MSMEs.

H_2 GS affects UI

When technology improves user performance and encourages its continued use, its perceived usefulness increases. How well fintech satisfies user demands, such as enhancing efficiency, saving expenses, and time, determines its perceived usefulness. PU have an essential role in shaping intentions to adopt fintech, because people will use it when they believe it streamlines processes and delivers tangible benefits. The perceived utility of technical developments greatly affects the desire to embrace and actually utilize them, according to many research (Adams et al., 1992; Gefen & Straub, 2002). Empirical evidence in mobile banking (Lau, 2016) and fintech contexts shows that perceived usefulness strongly shapes attitudes and adoption decisions (Agyei et al., 2020; K. Singh et al., 2021). Research by Kim et al., 2015 highlights usefulness as a key determinant of FA, while studies by Nangin et al., (2020) found that it also influences user trust. Further findings (Krah et al., 2024; Ambarwati et al., 2024) highlight the significance of this factor in consumers' acceptance of fintech by repeatedly showing a favorable association.

H_3 PU affects FA

PEOU in this research demonstrates its ability to address user requirements, such as saving time and boosting efficiency. Krah et al., (2024) found that PEOU positively affects FA of SMEs'; Saadah & Setiawan, (2024) also identified good link of PEOU and FA in Indonesia; Nugraha et al., (2022) confirmed its direct positive effect on SMEs' adoption decisions; and Nathan et al., (2022) also report the same findings. Taken together, these findings indicate that the more user-friendly fintech is, the greater the likelihood that SMEs will adopt it.

H_4. PEOU affects FA

FL refers to individuals' knowledge and understanding of fundamental financial concepts, including the ability to manage money and plan finances. Studies such as Prabhakaran & Mynavathi, (2023) show that FL significantly influences individuals' decisions to adopt fintech, while Nugraha et al., (2022) and Morgan & Trinh, (2020) highlight that higher FL strongly and positively affect awareness and usage of fintech products. Similarly, research by Liu et al., (2021) and X. Li et al., (2024) finds that FL is positively associated with innovation, demonstrating its strong influence across various innovation-related indicators.

H_5 FL affects FA

User innovation plays a significant role in FA, as innovative users want to explore, adapt, and create new solutions that enhance user experience, build trust, and support long-term usage. Research consistently shows its strong influence: Nugraha et al., (2022) report that UI directly and indirectly affects FA; Nugraha et al. (2022) identify it as a key driver of fintech uptake among SMEs, noting that businesses able to adapt technology for financial processes tend to adopt fintech more readily; Lee & Jae, (2018) highlight user innovation as a critical element accelerating financial technology adoption; and Putra et al., (2023) confirm that individuals who are more innovative in using technology are quicker adopt fitech.

H_6 UI affects FA

GS fostering fintech growth by providing regulations and infrastructure that benefit fintech firms, investors, and users. Research by Jahanmir & Cavadas, (2018) identifies government support as a key pillar of fintech development, while studies by Twum et al., (2021), Setiawan et al., (2021), and Nugraha et al., (2022) show that such support positively influences fintech adoption. Similarly, Balaskas et al. (2024) point out that clear regulations and strong digital infrastructure can boost FA in developing countries.

H_7 Government support affects FA

Trust is fundamental in financial services, particularly for SMEs that often worry about data security, making fintech platforms with reliable security systems more appealing. David Gefen, Elena Karahann, (2003) expanded earlier models by integrating trust as a key determinant in online service adoption, a few studies that supported are Hu et al., (2019), Broby, (2021), Saadah & Setiawan, (2024). Consistent with Yousafzai et al., (2005), trust in digital transaction security remains a major driver of fintech adoption, while D. J. Kim et al., (2009) further demonstrate that trust in fintech providers significantly influences users' intention to adopt financial technologies.

H_8. Trust affects FA

Effective fintech adoption can enhance SMEs' sustainability performance. Empirical studies consistently show that fintech contributes positively to business sustainability, with Al Doghan & Chong, (2023) finding significant improvements in environmental sustainability. Siddik et al., (2023) further report that FA positively influences environmental, economic, and social sustainability, while Hiew et al., (2024) identify a direct link between fintech use and social sustainability. Similarly, Najib et al., (2021) confirm that FA strengthens overall business sustainability.

H_9 FA has an impact on sustainability performance.

Conceptual Framework

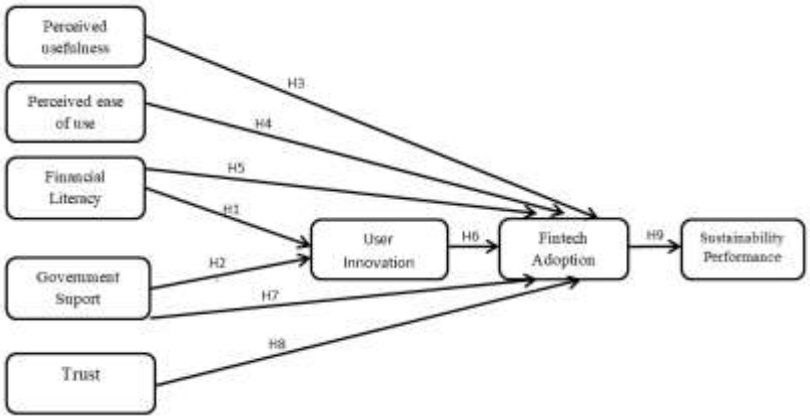

Figure 1. Research Frameworks

2. Methodology

This study adopted a quantitative approach to investigate the factors affecting FA and its influence on the sustainable performance of MSMEs. The research design was explanatory, aiming to test the causal relationships among latent variables derived from an integrated framework combining TAM and TBL perspective. Study participants are MSMEs from Java, Sumatra, and Bali who were surveyed using a cross-sectional survey approach. Data was gathered from these participants at a particular moment in time via Google Forms using purposive sampling technique. The questionnaire consisted of several statements representing each research variable and was measured using a five-point Likert scale, ranging from strongly disagree to strongly agree. This approach was employed to capture respondents' perceptions regarding fintech adoption and sustainability-related practices in their businesses.

Data analysis was performed using SmartPLS with the PLS-SEM approach. The procedure involved two primary stages. First, the measurement (outer) model was assessed to evaluate construct validity and reliability based on some criteria. Second, the structural (inner) model was analyzed to examine the proposed relationships among variables using path coefficients, R^2, and hypothesis testing.

Table 1. Distribution of sample data

No.	City/Regency	Number MSMEs	Percentage (%)	Number of Sampel (Business Unit)
1	Cirebon Regency	24,534	0,024	8
2	Majalengka Regency	25,413	0,025	9
3	Subang Regency	13,321	0,013	4
4	Indramayu Regency	13,178	0,013	4
5	Sumedang Regency	21,735	0,021	7
6	Bandung City	46,614	0,045	16
7	Bogor City	35,524	0,035	12
8	Depok City	15,180	0,015	5
9	Jakarta Timur City	50,880	0,049	17
10	Jakarta Barat City	48,201	0,047	16
11	Jakarta Selatan City	67,208	0,065	22
12	Jakarta Pusat City	34,717	0,034	12
13	Jogyakarta City	342.226	0,332	114
14	Sleman Regency	109,757	0,107	37
15	Surakarta City	8,050	0,008	3
16	Surabaya City	12,320	0,012	4
17	Malang City	29,058	0,028	10
18	Buleleng Regency	66,870	0,065	22
19	Medan City	25,301	0,025	8
	Total	**990,087**		**335**

3. Results

Respondents' characteristics

The respondents are categorized by age, gender, education level, number of workers and annual turnover.

Table 2. Respondents' characteristics

Respondents' characteristics	Frequency	Persentase (%)
Age		
25 – 40	126	38,2
41 - 55	165	48,5
>55	44	13,3
Total	**335**	**100**
Gender		
Laki-laki	175	51,5
Perempuan	160	48,5
Total	**335**	**100**
Education		
SMA/SMK	86	26,1
D3	79	22,4
S1	170	51,5
S2	-	-
Total	**335**	**100**
Number of Employees Owned		
< 4	106	32,1
5 – 19	215	63,6
20 - 99	14	4,2
Total	**335**	**100**
Company's annual income average		
Rp 300 jt – 2,5 M	258	78,2
Rp 2,5 m – 50 M	77	21,8
Total	**335**	**100**

Of the 335 respondents, the majority were aged 41–55 (48.5%) and were almost equally divided between genders. Education was dominated by bachelor's degree graduates (51.5%). Most MSMEs had 5–19 employees (63.6%) and annual revenues of Rp 300 million–2.5 billion (78.2%). These findings indicate that respondents generally came from MSMEs with adequate education levels and medium-scale businesses.

Evaluation of the Outer Model

Composite Reliability (CR) and Cronbach Alpha (CA) values were utilized for reliability testing, while Loading Factor and AVE values were employed for convergent validity testing in this work. The internal consistency of a group of indicators that make up a construct may be measured by using CR, which is a metric for testing the dependability of latent constructs.

Tabel 3. Validity and Reliability Test Results

Variable	Indicator	*Loading Factor*	AVE	Ket	CR	*Cronbach Alpha*	Description
Perceived Usefulness	PU1	0.904	0.829	Valid	0.932	0.931	Reliabel
	PU2	0.923					
	PU3	0.911					
	PU4	0.905					
Perceived Ease of Use	PEOU1	0.920	0.843	Valid	0.908	0.907	Reliabel
	PEOU2	0.916					
	PEOU3	0.919					
Financial Literacy	FL1	0.908	0.834	Valid	0.902	0.901	Reliabel
	FL2	0.920					
	FL3	0.913					
Government Support	GS1	0.915	0.835	Valid	0.901	0.901	Reliabel
	GS2	0.908					
	GS3	0.918					
Trust	T1	0.929	0.850	Valid	0.912	0.912	Reliabel
	T2	0.923					

	T3	0.914					
User Innovation	UI1	0.922	0.851	Valid	0.913	0.912	Reliabel
	UI2	0.925					
	UI3	0.920					
Adopsi Fintech	AF1	0.915	0.841	Valid	0.905	0.905	Reliabel
	AF2	0.920					
	AF3	0.915					
Environmental Sustainability Performance	ENP1	0.895	0.786	Valid	0.973	0.973	Reliabel
	ENP2	0.915					
	ENP3	0.886					
Economic Sustainability Performance	EP1	0.879					
	EP2	0.888					
	EP3	0.881					
Social Sustainability Performance	SP1	0.895					
	SP2	0.915					
	SP3	0.886					
	SP4	0.881					
	SP5	0.878					

According to the findings, all indicators show great convergent validity. The loading factor values are above the minimum requirement of 0.70, ranging from 0.904 to 0.923. With AVE values ranging from 0.786 to 0.851, we can see that each construct accounts for over half of the variation in its indicators. CR ratings of 0.901-0.932 and CA values of 0.901-0.931, all above the acceptable minimum of 0.70, demonstrating extremely good internal consistency in reliability testing. Taken together, these findings confirm that the research tool is valid, reliable, and fits the bill for an outer model that has strong measurement standards.

Inner Model Evaluation

In SEM analysis, R^2 indicates how much the exogenous variables contribute to explaining the variance of the endogenous variables, thereby reflecting the model's ability to describe the phenomena being studied.

Tabel 4. Determination Coefficient Test (*R-Square*)

Variabel	R-Square	R-Square adjusted
Adopsi *Fintech*	0.886	0.884
User Innovation	0.888	0.887
Sustainability Performance	0.908	0.908

The R-square values for fintech adoption (0.886), user innovation (0.888), and sustainability performance (0.908) indicate a very strong explanatory power. The independent variables explain more than 88% of the variance in the dependent variables, and the close alignment with the adjusted R-square confirms that the model is stable and possesses excellent predictive capability.

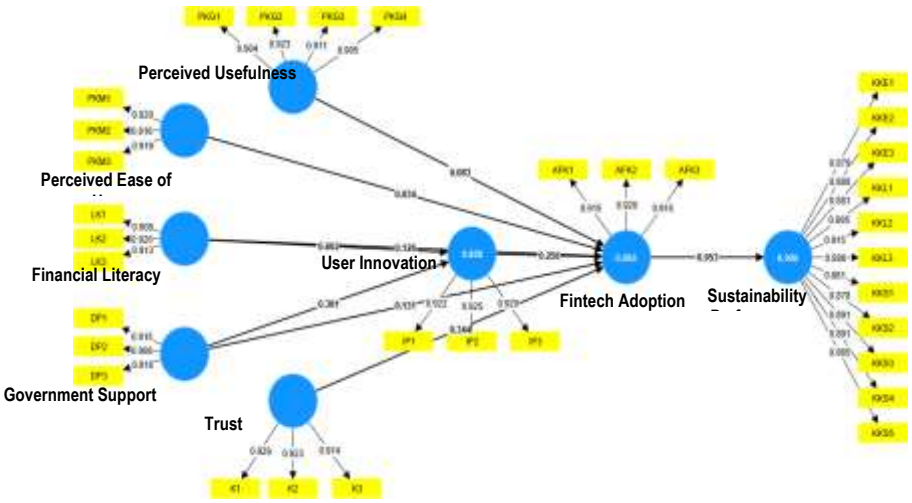

Figure 2. Results of hypotheses tests

Path Coefficient

Path coefficients set a significance level at 0.05.

Table 5. Hypothesis testing

Description	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Financial Literacy -> User Inovation	0.602	0.602	0.048	12.495	0.000
Government Suport -> User Inovation	0.361	0.360	0.048	7.513	0.000
Perceived Usefulness -> Fintech Adopt	0.083	0.093	0.079	1.053	0.292
Perceived Ease -> Fintech Adoption	0.034	0.042	0.066	0.520	0.603
Financial Literacy -> Fintech Adoption	0.126	0.123	0.062	2.034	0.042
User Innovation -> Fintech Adoption	0.256	0.248	0.063	4.058	0.000
Government Support -> Fintech Adoption	0.131	0.128	0.050	2.630	0.009
Trust -> Fintech Adoption	0.344	0.340	0.063	5.417	0.000
Fintech Adoption -> Sustainable Performance	0.953	0.953	0.007	142.673	0.000

Table 6. Summary of Hypothesis Testing Results

Hypothesis	Statement	Description
H_1	Financial Literacy and User Innovation in Fintech Adoption	Supported
H_2	Government Support for User Innovation in Fintech Adoption	Supported
H_3	Perceived Usefulness Perception Towards Fintech Adoption	Not Supported
H_4	Perceived Ease of Adoption of Fintech	Not Supported
H_5	Financial Literacy to Fintech Adoption	Supported
H_6	User Innovation to Fintech Adoption	Supported
H_7	Government Support to Fintech Adoption	Supported
H_8	Trust to Fintech Adoption	Supported
H_9	Fintech Adoption to Sustainability Performance	Supported

The results indicate that FL and GS foster UI. While PU and PEOU do not affect FA. FL, UI, GS, and trust significantly promote adoption. FA, in turn, positively enhances MSME sustainability performance.

4. Discussion

The results of this study give useful insights into the factors that influence FA and its role in supporting the sustainability of MSMEs. The significant effects of FL and GS on UI reinforce prior research emphasizing that human capital and institutional facilitation are essential drivers of innovation behavior in small enterprises. Financial literacy has consistently been linked to greater digital adoption capacity (Morgan & Trinh, 2020), while government support is known to create enabling conditions that reduce uncertainty and encourage MSME engagement with digital technologies (Arner, et al.,2016; Yoon, et al., 2022). Align with the Innovation Diffusion Theory, which posits that knowledge and supportive structures accelerate user innovativeness and technology experimentation (Rogers, 1995).

The insignificance of PU and PEOU challenges the conventional assumptions of TAM (Venkatesh et al., 2023). Recent studies in emerging-market MSME contexts have reported similar findings, suggesting that TAM constructs may be less influential when users face structural barriers, limited digital capability, or high perceived risk (T. Kim et al., 2020). Instead, adoption appears to be shaped by more practical and contextual considerations, as evidenced by the significant roles of FL, UI, GS, and trust. Trust is often repeatedly known as a decisive factor in FA

due to concerns over data privacy, system reliability, and transaction security. The strong effect of trust in this study reinforces the importance of perceived technological safety in digital finance adoption.

Furthermore, fintech adoption is found to substantially enhance MSME sustainability performance, supporting literature that links digital finance with improved operational efficiency, financial transparency, and resource management.Hyun-Sun Ryu, 2017). This outcome is consistent with the TBL framework, which mentions the interconnectedness of economic viability, social contribution, and environmental responsibility (Varga, 2018). Prior studies have similarly shown that digital financial inclusion can promote long-term resilience, inclusive growth, and environmentally responsible practices among MSMEs (Arner et al., 2016). Thus, the findings of this research affirm that FA isn't just a technological choice but a part of sustainable business development.

This study contributes to the literature by integrating TAM and the TBL framework to explain both the determinants and outcomes of fintech adoption among MSMEs. The findings demonstrate that financial literacy, government support, user innovativeness, and trust are more influential than traditional TAM factors in driving fintech adoption. Furthermore, the study provides empirical evidence that fintech adoption enhances MSME sustainability performance across economic, social, and environmental dimensions, thereby extending the understanding of sustainable digital transformation in emerging economies such as Indonesia.

5. Conclusions, Implications, Limitations, and Recommendations

5.1. Conclusions

This study examines the determinants of FA and its impact on the sustainable performance of MSMEs. By integrating TAM with the TBL framework, this research provides a broader perspective on how technological acceptance factors and sustainability dimensions interact within the MSME sector. The empirical findings indicate that FL and GS significantly influence UI, while FL, GS, trust, and UI positively and significantly affect FA. However, PU and PEOU do not show a significant influence on FA. These results suggest that in the MSME context, FA is more strongly driven by financial capability, institutional support, and individual innovativeness rather than solely by perceived technological benefits. This study also confirms that FA has a positive and significant effect on MSMEs' sustainable performance.

5.2. Implications

This research extends the application of TAM by integrating it with the TBL framework to explain not only technology adoption behavior but also its broader impact on sustainable business performance. By linking fintech adoption with economic, social, and environmental performance, this study enriches the theoretical discussion on how digital financial technologies contribute to sustainable development in the MSME sector. These findings also provide important practical implications for MSME actors, fintech providers, and policymakers in promoting FA and improving the sustainable performance of MSMEs. UI have a role in encouraging FA among MSMEs. Therefore, MSME actors need to develop a more open mindset toward technological innovation and improve their digital capabilities in order to effectively utilize fintech in business operations. FL also supports the effective use of fintech services. Improving financial knowledge enables MSMEs to better understand financial products, manage business finances more effectively, and make better financial decisions. For fintech providers, need to develop secure, reliable, and user-friendly services to increase trust and encourage wider adoption among MSMEs. Meanwhile, government support remains essential in accelerating MSME digital transformation through financial literacy programs, digital infrastructure development, and supportive regulatory frameworks.

5.3. Limitations and Recommendations

This study has a few limitations to keep in mind when interpreting the findings, and they also open up opportunities for future research. First, it only looks at MSMEs in selected regions, which may not fully apply to other areas with different economic, technological, and institutional conditions. Therefore, future studies are recommended to expand the research scope by including broader geographical coverage to obtain more comprehensive insights. Second, this research uses a cross-sectional design, which may not fully capture the dynamic nature of FA and its long-term impact on MSME sustainability. Future studies are encouraged to use longitudinal approaches to better understand changes in FA and business performance over time. Third, this study only considers a limited number of variables related to FA, while other important determinants such as technological readiness, organizational capability, and market competition were not included in the research model. Future studies are therefore suggested to incorporate additional variables to enrich the understanding of fintech adoption among MSMEs. Finally, the data used in this study rely on self-reported responses from MSME actors, which may be subject to response bias. Future research may apply mixed approaches or

secondary data to provide deeper and more comprehensive insights into fintech adoption and sustainable business performance among MSMEs.

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