

Fintech Acceptance Among MSMEs: A Post-Covid 19 Response

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ABSTRACT

The primary objective of this research is to assess the determinants influencing the adoption of Fintech among MSMEs in Medan City, focusing on MSMEs following the post-pandemic period. This study used an online survey among 156 MSMEs in Medan City. This research uses the Structural Equation Modeling - Partial Least Square (SEM-PLS) approach to analyze the conceptual model, utilizing the SmartPLS version 3 analysis tool. The study's results found that perceived ease of use and subjective norms influence the perceived usefulness of Medan City MSME actors in using Fintech. Overall, the results of this study indicate that perceived ease of use, perceived usefulness, subjective norms, and feeling of safety have a positive and significant effect on the usage of Fintech among MSME actors in Medan City. The results of this study also provide practical implications for using Fintech for MSMEs in Medan City in the new normal era (after the COVID-19 pandemic).

Keywords: Subjective norms; perceived usefulness; feeling safety; perceived ease of use; Fintech; MSME.

INTRODUCTION

During the age of the fifth industrial revolution, the Information and Communication Technology (ICT) domain has undergone tremendous growth, emerging as a fundamental pillar for the economic progress of the nation. [74]. Alongside the growth of the ICT sector, there has been a notable surge in the adoption of mobile and electronic devices, leading to shifts in customer perspectives [72]. Financial resources and government assistance have also played a crucial role in this expansion [29]. Consequently, Information and Communication Technology (ICT) lays the groundwork for a transformative shift within the financial industry. The COVID-19 pandemic has accelerated technology adoption in various fields, including the financial industry. This is caused by the increasing need for safe and convenient financial services and increasing public awareness of the importance of health and safety [71]. The COVID-19 pandemic has also encouraged people to switch to digital financial services. This is because people avoid physical contact with other people to prevent virus transmission [54].

The rapid advancement of the FinTech sector has facilitated the provision of convenient, secure, and reliable online banking services [72]. The presence of the fintech sector in Indonesia has spread to various financial services sectors such as payments,

online lending, financial planning (personal finance), retail investment, financing (crowdfunding), electronic money (e-money), and others [39]. In Indonesia, using Fintech in digital wallets has become a "trend" and has changed people's consumption patterns in the financial sector. Fintech in digital wallets is a digital investment for MSMEs, making it easier for consumers to pay using QR-code-based technology.

According to a Bank of Indonesia report, in the second quarter of 2021, electronic money transactions increased by 128.7% compared to the previous year. This increase was triggered by various non-cash payment services such as OVO, GoPay, ShopeePay, LinkAja, DANA, QRIS, etc. This is also confirmed by the 2021 DailySocial survey results, which state that digital wallets are the most popular fintech product in Indonesia.

Whereas previously, Indonesia faced a challenge regarding financial inclusion. In 2018, Indonesian citizens reportedly had around 700 million bank accounts [61]. At that time, internet and smartphone penetration is expected to become an essential prerequisite for adopting Fintech and a key factor for financial inclusion because the penetration rate of Internet users in Indonesia is 87.76%. Smartphone users were 79.14% in 2020, and they are expected to reach 90.52% and 85%, respectively, in 2025 [6][83]. Unfortunately, at that time, Indonesia's

payment system was still dominated by cash. According to Firmansyah, around 90% of payments were made in cash in 2019 [26]. Meanwhile, digital payments have increased the average transaction value per user.

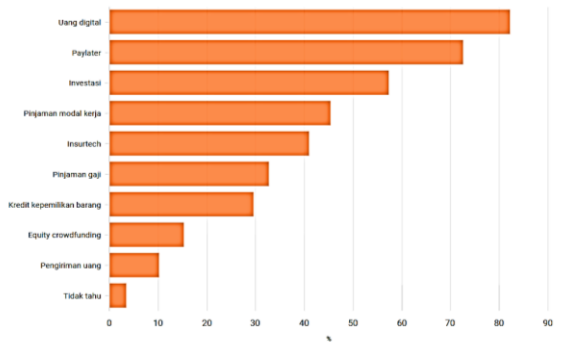


Figure 1. Most Popular Fintech Products in Indonesia
Source: Databooks (2021)

Interestingly, the global COVID-19 pandemic has presented a severe peril to the well-being of people worldwide and has had a profound impact on the global economy. According to the World Health Organization (WHO), Covid-19 primarily targets the respiratory system and can lead to fatalities. To address this crisis, numerous countries, including Indonesia, have implemented various policies and regulations to enforce social distancing and mitigate the widespread transmission of the virus. Regarding that issue, The World Health Organization (WHO) advises the public to apply cashless in all financial activities [42]. Likewise, in Indonesia, the government has issued a social distancing policy to reduce physical contact. Perceived risk of transmitting the virus has influenced consumer views and behaviour in the payment system, banking, and daily activities [33]. From these phenomena, the Fintech industry continues making various extraordinary innovations.

Consequently, specific technology and financial establishments have amplified their financial commitments to foster FinTech advancements, as these services directly connect with financial institutions and payment systems [72][25]. The emergence of digital financial solutions has revolutionized how customers and merchants engage in transactions. This shift has simplified and expedited the process of conducting transactions, allowing people to transact anytime and anywhere conveniently without physical contact. In this case, the existing innovation promoted in 2018 became utterly relevant during the COVID-19 pandemic with the cashless feature [48]. Therefore, this study adds health concerns proxied as safety feelings to understand MSMEs' massive adoption of FinTech in responding to COVID-19 circumstances, which is restricted to physical contact for averse virus transmission.

This study adopts TAM as the basis of this research model as it has been commonly used to measure acceptance of new technology [19], [20], [21]; [78]. Several studies have discussed the factors influencing fintech adoption [13];[70]. However, previous studies still focus on the intention of innovation, technological readiness, competitiveness, and individual digital awareness in addressing digitalization [5]; [12]; [13]; [16]; [17]; [28]; [37]; [53]; [60]. On the other hand, this researcher added that safety is essential in escalating fintech adoption due to the COVID-19 pandemic. We address this issue to bridge the gap and explain the massive adoption of Fintech during the 1408-COVID-19 pandemic. Specifically, the current study aims to analyze the determinants influencing fintech adoption among MSMEs in Medan City, focusing on MSMEs following the post-pandemic period.

Literature Review and Hypothesis Development

The Technology Acceptance Model (TAM) theory is rooted in The Theory of Reasoned Action (TRA). TRA assumes that the behaviour is under someone's control, which means it can be carried out whenever they want, following their reasonable preference [56];[7]. Two essential rational preferences in determining someone's behaviour are attitudes (attitude towards behaviour) and subjective norms [2]. The emergence of this theory is beneficial not only in the social field but also in economics, marketing, and information systems, where the TAM model was developed to analyze how a person accepts a new technology innovation [4].

Davis et al. [19] and Davis et al. [20] consider the inner and outer factors constructed in the parsimony model to explain how individuals accept a new technology. Davis et al. [19] and Davis et al. [20] argue that the new technology should be easy to use and deliver usefulness for IS-user productive tasks. Furthermore, as previously proposed in TRA, the subjective norm was adopted in TAM to explain how social dynamics can drive someone to accept a new technology [8];[19];[20].

The authors utilize TAM [35] to explain MSME behaviour in adopting Fintech in this study. We use TAM because it has been a general acceptance model that previous studies have widely used to assess user behaviour in e-commerce and fintech applications [1];[53]. Therefore, we assume that TAM is a robust model for describing user acceptance. However, this study proposes a new antecedent to complement TAM in explaining technological adoption in a unique phenomenon such as the COVID-19 Pandemic.

Perceived Ease of Use and Perceived Usefulness

This study utilizes three essential variables of TAM as the critical antecedents of fintech adoption

behaviour, that is, Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Subjective Norm (SN). PEU highlights the system's ability to solve complexities, making it more user-friendly [21];[38]. Specifically, PEU refers to the extent to which users experience comfort and confidence while acquiring knowledge while utilizing FinTech services [38]. Previous research found a significant positive relationship between perceived ease of use and technology services, such as FinTech digital payment services [13];[67]. Kurniasih et al. [44] argue that fintech applications nowadays have various features that help the user solve multiple needs, making it easier for users to handle transactions, access transaction history data, and make decisions. Users can check every transaction made anytime and anywhere [44].

Furthermore, PU refers to how users experience the new technology that helps them handle their productive activities [19];[20]. PE refers to the benefits of adopting a system in an organizational environment that could make users more productive and work efficiently [62]. In the Fintech case, the technology could help users optimize their productivity by cutting banking activities after physical transactions. The Fintech systems already handle it by instantly recording the money from the customer to the business bank account [52]. Business actors can substitute their banking activity for another productive activity to improve their business performance.

Interestingly, Indraswara et al. [40] found that PEU affects perceived usefulness significantly, affecting technological acceptance. A previous study also proposed PEU as the indirect antecedent of technological acceptance mediated by the PU [52]. Researchers argue that ease of use is the first gate for new users to be attracted to the latest technology. Users are interested in using the application because of the appearance and placement of menus or features, which are easy to understand and operate [6];[37]. Several fintech applications have spoiled users by providing convenience in using applications such as quickly filling in balances [25]. This helps users understand whether the technology would be helpful, including in fintech systems [3];[70]. For example, MSMEs can consider whether Fintech benefits them if they can learn about it quickly through the Fintech application itself. Their decisions are related to costs in their daily lives. The easier the fintech application is to learn and use in the initial interaction, the more MSMEs can feel the fintech system is helpful for them. Therefore, we formulate the following hypothesis.

H₁: PEU positively influences the PU's use of Fintech among MSMEs.

Subjective Norm

Subjective Norm (SN) is a TRA construct that provides a theoretical basis for developing TAM.

[55]. SN refers to the extent to which individual behaviours are influenced by their social environment, which a community, an influence person, or a trusted person could represent [19]; [20]; [55]. In this research context, SN is defined as the extent to which individuals are influenced by their social environment in determining digital technology as the solution they want to improve their business performance [27]. Schepers & Wetzels's [65] meta-analysis examined the influence of SN in the TAM; SN had a significant effect on perceived usefulness and, at the same time, directly affected technological adoption. Another study found that PU mediates the relationship between social image and user actualization of e-payment systems [50].

In this case, researchers argue that SN would significantly impact technological adoption due to the competitive situation in business environments, especially in the crisis era. According to Bommer et al. [10] and Le [46] research, social influence encouraged users to use e-wallets during the COVID-19 outbreak. The COVID-19 crisis escalated two aspects of the business case: health concerns and business competition during the adverse time [10]; [46]. It was indicated that SN has increased the awareness of technological adoption in risky and more competitive circumstances [43]. Due to the significant business competition, SN could be a significant driver for MSMEs to adopt Fintech. Therefore, SN could directly affect the adoption of both PU and Fintech.

H₂: SN positively affect the PU of using Fintech among MSMEs.

H₃: Subjective Norms positively affect the use of Fintech among MSMEs.

PU is the critical antecedent for users to adopt a technology [80]. Users are inclined to consider or utilize digital services that provide additional value through improved efficiency, effectiveness, and time-saving benefits. From a consumer perspective, previous studies found that online shopping users tend to use specific marketplace applications according to their benefit from gaining helpful information and enhancing their shopping experience practically [38];[51]. Another study also found that perceived usefulness significantly relates to digital payment adoption [3];[70]. Current research considers that views could also be applied from a business actor perspective. MSMEs experiencing benefits from fintech usage would perceive that technology is valid and, in turn, decide to use it to improve their business performance. Therefore, researchers argue that the PU of using Fintech will influence the Fintech adoption among MSMEs. This study formulates the following hypothesis:

H₄: Perceived usefulness positively influences the use of Fintech among MSMEs.

Feeling Safety

Feeling safety is a belief that individuals perceive increases their confidence to act in certain behaviours [23]. Feeling safety may focus more on a healthy environment or safety conditions [23]. Feeling safe has become a concern for consumers and business actors, which drives their buying behaviour due to COVID-19 [23]. Feeling safety can manage individual perceptions regarding risk and increase their confidence in doing productive or leisure activities [23]. In this case, business actors should strategically manage negative consequences due to risk perception by preventing health risks for consumers and business actors [14].

Previous studies indicate that feeling safe will influence consumer purchasing decisions during the COVID-19 Pandemic [54]; [67]; [69]. Furthermore, some studies also discussed how the feeling of safety (FS) can significantly impact technology use [3]; [18]; [23]. However, regarding technology adoption, safety concerns are more important than health aspects, such as privacy and security [24];[70]. In this study, we use safety feelings to describe safety-related health concerns to prevent COVID-19 virus transmission, which aligns with Duarte et al. [23]. Cash, paper money, and direct contact-based payment methods can open a window for virus transmission, resulting in health problems. At the same

time, using fintech applications could minimize physical contact in financial activities and transactions [18]. Therefore, we proposed the following hypothesis: H₅: Feelings of safety positively affect the use of Fintech among MSMEs.

RESEARCH METHOD

Current research uses a quantitative approach focusing on numerical data (quantity). Descriptive statistical analysis is utilized for data management to draw the response pattern. Structural Equation Modelling (SEM) was used to analyze the relationship between subjective norms, perceived ease of use, safety feeling, perceived usefulness, and fintech usage.

The targeted respondents of this study are MSME owners or managers in Medan City. We collected data in Medan City because it represents a capital city highly impacted by the mobility restrictions during the COVID-19 Pandemic. According to the Indonesian government, Medan is one of the capital cities outside Java and Bali. It should implement level 2 mobility restriction (PPKM) or include it in the yellow zone, which requires the business sector to minimize physical contact, prohibit crowds, and dine for restaurants [66]. Therefore, the contextual circumstances addressed in this study are experienced by the MSMEs in Medan City.

Table 1. Variables, Indicators and Sources

Variables & Definition	Indicator	Source
Subjective Norms (NS) - to what extent MSMEs are influenced by their social environment, for example, the business community, partner, colleague, or consultant, in determining the use of fintech application as the solution to improve their business process or service	Friends suggest using Fintech for business transactions Mentors suggest using Fintech for business transactions.	[15];[18]
Perceived Ease of Use (PEOU) = to what extent MSMEs experience comfort and confidence while acquiring knowledge and utilizing fintech services	Fintech makes transactions easy for me The use of fintech applications is very flexible. Ease of proficiency in using Fintech	[19];[21]
Perceived Usefulness (PU) = to what extent MSMEs trust the Fintech to help their productive activities	Using Fintech will improve the performance of business transactions Using Fintech will increase the productivity of doing business. Using Fintech will increase the effectiveness of business transactions.	[20];[19];[21]
Safety Feeling (SF) = the awareness of MSMEs that the Fintech is secure and helps them to have a safer working environment	Awareness of the need to provide security to digital devices Awareness that my data and privacy on digital media need to be secured Awareness that health in the use of digital media needs to be maintained Awareness that environmental sustainability needs to be maintained	[14];[79]
Usage of Fintech (UDT) = the actual use of Fintech by MSMEs for their business purposes	using Fintech for daily business sales transactions using Fintech for my business's daily purchase transactions using Fintech to record my business's daily sales and spending using Fintech to review the progress of my business My business will continue to use Fintech. I would recommend other businesses to use Fintech.	[22];[34]

We use purposive sampling to collect the data. The respondents' criteria are MSMEs that have been running their businesses for at least four years and initiated adopting Fintech during the COVID-19 pandemic. Researchers collected the data using an electronic questionnaire. The instrument of data collection was adapted from Davis [19] and Davis et al. [20] for PEU, PU, and SN constructs, Vuorikari et al. [79] for the safety feeling construct, and Hasan, Ashfaq & Shao [34] for fintech adoption construct. The original instruments were translated and adapted following the current research context. The researcher also applied face validity involving two experts to validate the internal validity. Furthermore, we use a 5-Likert scale design to collect the responses.

Questionnaires were distributed randomly to targeted MSMEs in Medan City from April to July 2023. Enumerators were ordered to collect the data from the MSMEs' owners and managers. One hundred fifty-six data were collected during that window of time.

Furthermore, the data was analyzed using Partial Least Square-SEM with the help of the smartPLS 3.0 application. The data analysis consists of two stages: the measurement and structural models. The Measurement model contains three aspects of construct validation: convergent validity, discriminant validity, and reliability [31]; [32]. Finally, the hypothesis testing was observed from the structural model result [31]; [32].

RESULTS AND DISCUSSION

The survey results indicate that the respondents' identity data comprised 74 males (47%) and 82 females (53%). Regarding educational background, seven respondents (4%) had a junior high school level, 108 respondents (69%) had a high school level, nine respondents (6%) had a Diploma level, 31 respondents (20%) had an Undergraduate level, and one respondent (1%) had a Master's level. In terms of business ownership among MSME actors, 90 respondents (58%) had businesses running for 1-5 years, 41 respondents (26%) for 6-10 years, 12 respondents (8%) for 11-15 years, nine respondents (6%) for 16-20 years, and four respondents (3%) for 20 years and above. Furthermore, the distribution of MSME businesses was as follows: 53 respondents (34%) were in the business sector, 21 respondents (13%) were in the service sector, 80 respondents (51%) were in the culinary sector, and two respondents (1%) were in the manufacturing sector.

We use Partial Least Square (PLS) SEM as the parameter estimation method to analyze the data. The PLS method enables the simultaneous assessment of various variables within the model. Moreover,

PLS is deemed appropriate for conducting exploratory research in economics and behaviour [32]. The research data was analyzed in 2 stages, starting with the measurement model (outer model) and the structural model (inner model).

Table 2. Outer Model Test Results

	Item Load	CA	rho_A	CR	(AVE)
Subjective Norms (NS)		0.788	0.832	0.902	0.822
NS52	0.879				
NS53	0.933				
Perceived Ease of Use (PEOU)		0.835	0.837	0.901	0.752
PEOU19	0.862				
PEOU22	0.851				
PEOU23	0.887				
Perceived Usefulness (PU)		0.829	0.829	0.898	0.746
PU13	0.861				
PU14	0.888				
PU15	0.841				
Safety Feeling (SF)		0.912	0.927	0.938	0.791
SF35	0.913				
SF36	0.835				
SF37	0.913				
SF38	0.893				
Usage of Fintech (UDT)		0.916	0.928	0.934	0.703
UDT43	0.839				
UDT44	0.877				
UDT45	0.816				
UDT46	0.788				
UDT47	0.872				
UDT48	0.834				

Source: Data Processed (2023)

Convergent validity is observed from the loading factor of the measurement items with a critical value above >0.7 [31];[32]. According to Table 2, all indicators are considered acceptable because the factor loading is generally above 0.80 [31]. Furthermore, Discriminant Validity was observable on the HTMT matrix in Appendix 2. Constructs considered to fulfil discriminant validation are the constructs that have a relation below <0.9 in the HTMT matrix [31];[32]. According to Appendix 2, all of the constructs have met discriminant validity. Finally, the reliability was tested using Cronbach's Alpha (CA) and Composite Reliability (CR) with a critical value greater than 0.80, indicating the construct has good internal consistency [28]. According to Table 2, all of the constructs have CR values greater than >0.70 , which shows that all constructs have achieved internal data consistency or reliability.

Table 3. Inner Model Test Results

	O - Sample (O)	S - Mean (M)	StDev	T - Stat	P Value
PEOU → PU	0.678	0.675	0.062	10.992	0.000
PU → UDT	0.437	0.437	0.101	4.344	0.000
SF → UDT	0.173	0.173	0.082	2.104	0.036
NS → PU	0.171	0.172	0.077	2.235	0.026
NS → UDT	0.268	0.270	0.083	3.230	0.001

Source: Data Processed (2023)

Table 3 shows that all hypotheses are supported. The results showed that PEOU had a significant positive relationship with PU ($\beta = 0.678$; $P < 0.05$), then H_1 is supported. Furthermore, PU ($\beta = 0.437$; $P < 0.05$), Safety Feeling ($\beta = 0.173$; $P < 0.05$), and SN ($\beta = 0.270$; $P < 0.05$) found have a significant positive relationship to the Usage of Fintech, therefore H_3 , H_4 , and H_5 are supported. Finally, this research found that SN significantly impacted PU ($\beta = 0.171$; $P < 0.05$), so H_2 is supported.

In recent years, the world has made significant progress in pushing society towards a cashless payment system [69]. This can be attributed to the growing public accessibility to the internet and digital devices. The fintech industry, particularly in developing nations like Indonesia, is witnessing early-stage growth and development. Among the various sectors of the fintech industry, e-wallets and fintech payments are the most commonly used in Indonesia [45]. The online market in Indonesia experienced tremendous growth in the first half of

2020 [59]. We argue that the COVID-19 pandemic has significantly impacted individuals' transaction styles and habits. For this reason, the business sector also responded by turning to financial technology to carry out financial transactions to reduce the risk of spreading the virus.

The study found a significant and positive impact between the PEOU and PU. This result aligns with previous research [52];[77]. This indicates that if MSMEs find that Fintech is easy to use, they will be more willing to use it for their business process to improve the quality of their business transactions. This suggests that the easier it is for MSMEs to interact with the fintech system, the more likely they will feel that Fintech is helpful for their business continuity [60];[81].

This study also found that PU has a positive impact on fintech usage. This is unsurprising because the target respondents are MSME actors. They will instantly adopt that technology once they experience prospective benefits from fintech usage for their business improvement [49];[81]; [82]. Explicitly, the outcomes reveal that MSMEs in Medan City believe that integrating FinTech can enhance their business performance in productivity, effectiveness, and time management. These findings support TAM's theoretical foundation, which posits that individuals evaluate technology based on its potential benefits for business development before adopting it [67]. This study uses PU as a metric to assess how Fintech adoption fulfils user needs, including time savings and productivity gains.

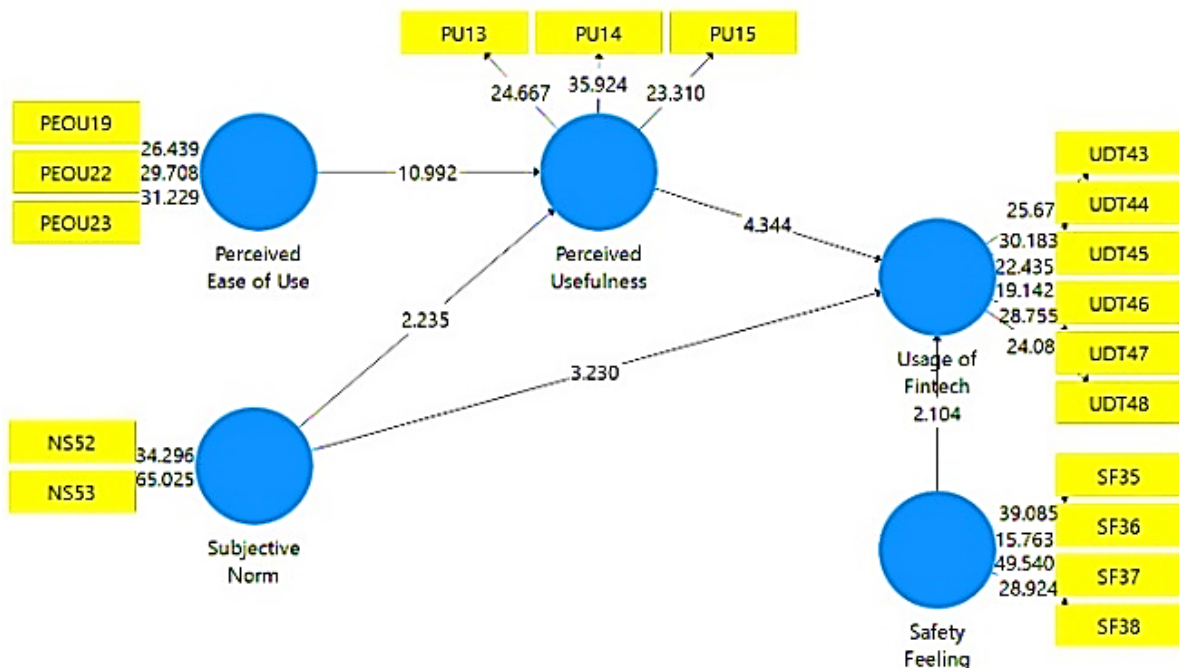


Figure 2. SEM Model
Source: Data Processed (2023)

Furthermore, SN was also found to have a positive influence on PU and fintech usage. The findings indicate that MSME actors consider fintech adoption a valuable instrument to maintain competitiveness [76]. These findings are reinforced by a previous study, which suggests that SN is the most substantial factor that impacts PU in adopting a new technology where vital people in one's social circle have ways to influence their behaviour [30];[73]. Users may only consider their behaviour when using a new technology once motivated by important people who can influence their attitudes and behaviour when using a system [41];[64]. Furthermore, Fintech is a valuable technology that can improve business transactions, payments, and e-wallets. Collaboration work in the business community could also benefit from this technology. That community probably has a positive influence on fintech adoption. Social researchers have also shown the importance of social aspects in people's acceptance of new technology [78].

Finally, safety feeling has a positive impact on FinTech usage. Feeling safety reflects consumers' uncertainties, which is accommodated by the information system feature that facilitates users to do financial transactions safely [47];[58]. Safety feeling in the transaction system through Fintech services will improve the willingness of individuals to adopt related technology [57]. Previously, research has found that Fintech, which guarantees service security, cyber security, payment fraud, and identity theft, has become a concern for consumer and business actors for future adoption [68]. This study adds value by promoting an alternative safety concern related to the health issue, which is crucial in the COVID-19 pandemic. MSMEs face uncertainty during the crisis, and Fintech could enable them to transact without physical contact. It also allows MSMEs to do remote business during mobility restrictions.

CONCLUSION

This empirical study examines the factors that influence the use of Fintech among MSME actors, such as PEU, PU, SN, and safety feeling. The results found that all variables significantly and positively affected Fintech usage. Based on those findings, practically, MSME actors can adopt FinTech to achieve higher efficiency, boost business productivity, and save time more effectively than physical or traditional contact-based. Moreover, safety feeling could be considered by the fintech provider to secure and optimize their service to improve market adoption of their fintech service,

Theoretically, safety regarding health issues was a significant trigger of the fintech adoption

among MSMEs during the COVID-19 pandemic. This phenomenon adds theoretical insight that uncertainty, external to the technological and social factors, could be a technological acceptance driver. It brings theoretical implications in defining technological acceptance in specific IS functions like Fintech. Furthermore, as MSMEs have realized the benefits of Fintech, the diffusion of Fintech innovation could be more widespread in today's business practice. At the same time, fintech providers should improve their features to provide more benefits to help MSMEs improve their competitive advantage.

This study focuses on the feeling of safety when using financial technology (FinTech). In the future, similar research can consider other senses of safety, such as privacy, economic, and phishing risks. In addition, this study also has limitations, such as singular geography characteristics and not analyzing the demographic features of MSMEs, such as gender, income, and level of education. So that in the future, researchers can consider those factors to improve the external validity of the research findings. Future research could also examine longitudinal data comparing fintech adoption before, during, and after the crisis.

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APPENDIX

Collinearity Statistics (VIF)

	VIF
Subjective Norms (NS)	
NS52	1.731
NS53	1.731
Perceived Ease of Use (PEOU)	
PEOU19	1.847
PEOU22	1.888
PEOU23	2.271
Perceived Usefulness (PU)	
PU13	1.967
PU14	2.269
PU15	1.712
Safety Feeling (SF)	
SF35	3.365
SF36	2.414
SF37	3.342
SF38	3.047
Usage of Fintech (UDT)	
UDT43	2.493
UDT44	3.121
UDT45	2.938
UDT46	2.724
UDT47	3.009
UDT48	2.332

Heterotrait-Monotrait Ratio (HTMT)

	PEOU	PU	SF	NS	UDT
Perceived Ease of Use					
Perceived Usefulness	0.897				
Safety Feeling	0.637	0.613			
Subjective Norm	0.514	0.555	0.616		
Usage of Fintech	0.593	0.734	0.570	0.625	