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The Role of Knowledge and Penetration of Fintech Services in Improving MSMEs of Fishermen and Marine Farmers in Remote Small Islands Region

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Abstract

Objective: This study aims to investigate the impact of knowledge and current penetration of fintech services on the overall performance of micro, small, and medium-sized enterprises (MSMEs), which in this case were fishermen and marine farmers.
Design/Methods/Approach: This study utilized data from nine fishing villages with two hundred respondents. The data was collected using a questionnaire base on the technique of purposive sampling and then analyzed using SmartPLS and path analysis.
Findings: Knowledge had direct and indirect positive and significant effects on the overall managerial performance of fishermen and marine farmers. In addition, the user experience might increase the rapid adoption of Fintech, improving the performance of MSMEs in small island regions.
Originality: This study highlights the importance of fintech knowledge for increasing the uptake and impact of Fintech among MSMEs in remote small island areas, which has escaped the attention of scientific research.
Practical/Policy implication: Given the results, more effort is needed to increase the knowledge of MSMEs in small islands region regarding services and risk to increase the participation of MSMEs in Fintech.

Keywords: Fintech, Fisheries, MSMEs, Small islands,

JEL Classification: G510, G19

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1. Introduction

The global fintech industry is projected to reach USD 226.5 billion in 2021 and USD 492.81 billion by 2028, expanding at a cumulative annual growth rate (CAGR) of 16.8% (Mordor Intelligence, 2022). Fintech has gained traction in developing countries in recent years, with the World Bank reporting that financial inclusion is a cornerstone of the recent penetration of Fintech. Fintech is becoming increasingly significant for fostering economic resilience and financial inclusion in small island regions. The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) found that cross-border remittances are a substantial source of external financing for small Pacific islands (Hahm et al. 2021). Nevertheless, small islands can become major fintech hubs by focusing on two crucial issues: establishing a favorable regulatory framework and cultivating a robust local talent pool.

Although Fintech has the potential to revolutionize financial services and increase financial inclusion in developing nations, several obstacles must be overcome to broaden the benefits of Fintech. In many developing nations, digital infrastructure is insufficient, making it difficult for fintech companies to provide services to those lacking internet and mobile phone access (Senyo et al., 2022). In addition, developing countries lack financial literacy and may be unable to utilize fintech products and services successfully. This can constitute a barrier to adoption and impede individuals from realizing the possibilities of Fintech (Karakurum-Ozdemir, 2019). Financial clients in developing countries accustomed to interacting with traditional financial institutions may lack trust in fintech enterprises. Establishing trust through transparency, security, and customer service is essential for the success of fintech companies in these markets (Baidoo & Akoto, 2019). To address these challenges, fintech companies, governments, and other stakeholders must collaborate to establish an environment that encourages innovation, promotes financial literacy, develops trust, and offers access to capital and digital infrastructure.

These obstacles should be overcome by enhancing the knowledge of the potential user in developing countries, especially in a remote regions. Knowledge and understanding of Fintech can significantly influence a person's attitude. Being more knowledgeable about the possible benefits and risks of Fintech can increase the chance of having a nuanced and informed perspective on the subject. A risk factor is probably the main factor that keeps the new customer from entering Fintech. When a consumer is aware of the possible risks linked with Fintech, they may be more cautious and sceptical about it. Thus, understanding the risks in Fintech can determine the attitude toward using Fintech in developing countries (Hinson et al. 2019). In addition to risk, knowledge of various fintech goods and services contributes to a positive attitude towards the industry. A person's perspective of Fintech may also be affected by their familiarity with Fintech products.

Fintech has positively affected the performance of micro, small, and medium-sized enterprises. Fintech platforms can assist financial institutions by enhancing and automating their procedures, providing collaborative capabilities, and making it easier to offer loans to historically unbanked individuals (Abbasi et al., 2023). Inclusion can contribute to a favorable attitude toward Fintech (Gabor and Brooks, 2018). In addition to developing financial products and services, financial inclusion encompasses four other elements: expanding access to finance, the availability of financial products and services, the use of financial service products, and the improvement of the quality of both the use of financial products and services themselves.

According to 2017 World Bank data, just 32% of Indonesia's population is financially literate. In contrast, Malaysia and Singapore reached 36% and 59%, respectively, followed by Thailand at 27%, the Philippines at 25%, Vietnam at 24%, and Cambodia at 18%. Following are statistics on the level of financial literacy and financial inclusion across the nation. Statistics from the Indonesia Financial Service Authority in 2016 for the level of financial literacy per area where DKI Jakarta has the highest score compared to other regions in Indonesia, namely 40% financial literacy level, while the lowest is West Papua, with a literacy rate of 19.27%. The second highest is West Java, with 38.70%, while the second lowest is Papua, with 22.18%. This shows the challenge government and private companies face to penetrate the fintech service in remote areas such as small islands in eastern Indonesia.

Nevertheless, Fintech is crucial for micro-enterprises because it has the potential to enhance financial management, increase efficiency, open new markets, and give access to capital. When microbusinesses utilize the solutions provided by financial services, they may be able to overcome some of the obstacles they confront and become more financially robust and sustainable. This is because micro businesses can overcome some of the hurdles they encounter. Understanding the elements contributing to adopting Fintech is crucial for improving financial access for Indonesian MSMEs. To build a cutting-edge strategy for promoting Fintech services to expand MSME financial access that is close to and following their demands, policymakers must analyze the Fintech adoption drivers.

There are studies linked to Fintech, specifically the use of technology. For example, in a study conducted by Bajunaied et al. (2023) to explore consumer attitudes about Fintech in Saudi Arabia, the researchers discovered that privacy is the fundamental key to increasing the penetration of Fintech. Furthermore, Nugraha et al. (2022) discovered that boosting the understanding of MSMEs in Indonesia can promote financial literacy and hence the penetration of Fintech. Furthermore, Savitha et al. (2022) discovered that customer expectations influence their decision to continue using fintech services in India. In contrast, Al Nawayseh (2020) discovered that benefit is the primary element that influences customer attitudes toward Fintech in Jordan. Mene et al. (2022) emphasized using Fintech to improve corporate performance. Other research has similar objectives, but the focus on micro and small businesses is limited.

Furthermore, the number of studies of coastal locations where familiarity with ICT and Fintech is inadequate is also limited, despite these regions requiring more attention from researchers and all stakeholders. Thus, this study provides a more in-depth perspective on gauging the total managerial competencies of MSMEs in the small island region on the potential of employing and adapting Fintech.

Given the numerous benefits obtained when a business uses fintech services, it is necessary to conduct an in-depth study of the existing conditions of knowledge and penetration of fintech products and services on small islands, particularly among micro, small, and medium-sized fishermen and fish cultivators. Thus, this study aims to investigate the impact of financial literacy and penetration of fintech services on the business performance of MSMEs, particularly fishermen and marine farmers. These groups of business actors are usually characterized as low educated and management skills, which makes it important to obtain their perspective of Fintech, which has significant potential to help them conduct their business, particularly managing their financial operations.

This research's main contribution is to support Indonesian government programs that wish to digitize MSMEs. In addition, this research also aims to increase the availability of literature on Fintech in areas that tend to be remote, such as islands and small islands. This research contributes to an overview of the impact and importance of factors that contribute significantly to the performance of MSMEs, specifically to the managerial performance of businesses through the currently available fintech services. This research also examines the importance of basic knowledge in increasing the ability to manage business finances, especially in remote coastal communities.

Furthermore, the structure of this article is as follows: a review of the theory and conceptual framework, as well as the formulation of hypotheses, can be found in the literature review section, followed by data collection techniques and data analysis in the methodology section, followed by the results of the research and concluding remarks.

2. Literature Review and Hypotheses Development

User Experience and Fintech Services Penetration

User experience (UX) is a crucial aspect of the success of fintech services. It is a must for Fintech (Cordeiro & Weevers, 2016). Fintech businesses prioritizing UX in their goods and services can enhance user adoption and retention rates. The increasing popularity of fintech services is due to their convenience and usability (Chung & Kim, 2020). Fintech companies create innovative products and services to meet the demand for quick and simple access to financial services (Barbu et al. 2016). Consumers expect a seamless and straightforward user experience when interacting with financial services. Fintech companies must engage in UX design to ensure that their services are user-friendly and meet the needs of their target audience (Hu et al. 2019). This includes the design of user-friendly interfaces, the simplification of complex financial processes, and the supply of concise and clear information. Also, UX can facilitate the spread of fintech services into new areas. In relatively new emerging regions where traditional financial services are not readily available, fintech companies can use UX design to make their services more accessible and tempting to potential customers by implementing UX design (Chammanur et al. 2020). By developing intuitive and easy-to-understand services, financial companies may improve their market reach and penetration (Karim et al., 2022).

UX is a critical success factor for financial services, and fintech firms that prioritize UX in their products and services can increase client adoption and retention rates. Moreover, UX may enable the spread of fintech services into new areas by making their services more accessible and alluring to potential users. Fintech services have experienced rapid penetration in recent years due to their ability to provide convenience, accessibility, and cost-effectiveness (Arora et al., 2023). User experience is one of the key drivers of fintech adoption. Using user-centered design concepts, Fintech companies produce digital products that are user-friendly, aesthetically pleasing, and intuitive. They continuously improve the customer experience of their products using data analytics and user input. Therefore, hypothesis one of this study is as follows:

H1a : User experience has a positive and significant impact on fintech penetration
H1b : User experience has a positive and significant impact on fintech services
H1c : User experience has a positive and significant impact on MSMEs performance

Fintech Penetration and Product Services

The financial services industry is undergoing a rapid transition brought on by the rise of fintech services, which provide customers and businesses with increased flexibility, convenience, and cost-effectiveness in administrating their financial resources (Ng & Kwok, 2017). The extent to which consumers, businesses, and financial institutions have adopted and used products and services offered by fintech companies is called the "penetration" of fintech services. Fintech products are financial services that use technology to provide access to financial services such as payments, loans, investing, insurance, and wealth management in a manner that is quicker, less expensive, and more accessible.

The penetration of fintech services has increased gradually over the past few years because of technical improvements, shifting consumer preferences, and rising demand for digital financial services (Li et al. 2020). New generations, more tech-savvy and comfortable with digital media, find fintech services particularly appealing. Numerous consumers prefer the convenience and adaptability of handling their accounts online or via a mobile application, leading

to online banking services' popularity (Almuhammadi, 2020). Many traditional banks now offer Internet banking services to their consumers. In comparison, the adoption rates of other fintech products may be lower, depending on their complexity, level of regulatory monitoring, and consumer confidence. For instance, some consumers may be hesitant to use peer-to-peer lending systems due to security and risk concerns (Lee, 2017).

In the financial technology industry context, the term "product penetration" refers to the degree to which specific financial technology products have been adopted and are being utilized by organizations and individuals alike. The amount of product penetration can change depending on a few aspects, some of which are the product's features and benefits, it is pricing, the user experience it provides, and the level of competition currently in the market. In addition, the amount of product penetration can change depending on how much competition there is in the market (Chen et al. 2019).

Individuals and enterprises can now access financial services with greater ease and convenience, particularly those previously underserved or excluded by traditional banking institutions (Mainardes et al., 2022). The expansion of Fintech has a huge and widespread favourable influence on individuals and enterprises. This includes the influence beneficial to individuals and corporations (Pant, 2020). The second benefit is that alternative financial products offer lower fees and transaction costs than conventional ones, making financial services more accessible to consumers and businesses (Wang et al. 2021). Moreover, financial technology facilitates faster and more efficient transactions, lowering the time and resources required to conduct transactions (Berg et al., 2022). It also provides greater visibility and transparency into their financial transactions, allowing for more informed decision-making (Jünger & Mietzner, 2020). Lastly, financial technology fosters greater financial inclusion by facilitating access to financial services and products for previously underserved or excluded populations (Morgan, 2022). Therefore, hypotheses two and three of this study are as follows:

H2a : Fintech services have a positive and significant impact on fintech penetration
H2b : Fintech services have a positive and significant impact on MSMEs performance
H3 : Fintech Penetration has a positive and significant impact on MSMEs performance

Customer Attitude and Fintech Services

Customer perceptions of financial services may be profoundly affected by fintech services, which are financial products and services delivered via information, communication, and technology (ICT) platforms (Oladapo et al., 2022). It is conceivable for financial technology services to have a significant and positive effect on client attitudes. Consumers who utilize fintech services can access numerous benefits, including usability, flexibility, low pricing, and customized solutions (Shiau et al. 2020). These advantages may lead to increased customer satisfaction and loyalty and positive recommendations from satisfied consumers to other prospective clients (Mainardes et al., 2022).

The fact that services provided by fintech companies are created to be user-friendly, easily accessible, and efficient can significantly improve the overall customer experience. Customers, for instance, can obtain access to a variety of financial services, including banking, investing, and insurance products, directly from their mobile devices at any time, seven days a week, without the need to physically visit a branch or office (Nicoletti & Nicoletti, 2017). This level of convenience has the potential to significantly improve the experience of the customer and increase their loyalty. However, traditional financial services are typically less cost-effective and less adaptable than fintech services, which can be a significant benefit for customers of fintech companies. Fintech services usually offer reduced fees and interest rates and more flexible payment and investment options, which may appeal to consumers who wish to save money or gain financial control (Knewtson & Rosenbaum, 2020).

Fintech services have the potential to positively impact customer attitudes by providing customers with a more convenient, economical, and individualized experience with their financial transactions. This can be accomplished by offering customers a more personalized experience with their financial transactions. This can increase customer satisfaction, loyalty, and advocacy for fintech products and services. Value and perception of customer fintech services can impact fintech services. When it is positive, the fintech services available will still exist and even more development, and vice versa. When the attitude is negative towards Fintech, the services will not last long. As for the effect of customer attitude towards MSMEs performance, costumer with a positive perception towards Fintech will have better knowledge and capabilities towards managing their business, thus, increasing the performance of MSMEs altogether. Therefore, hypothesis four of this study is as follows:

H4a : Favorable attitude has a positive and significant impact on fintech services
H4b : Favorable attitude has a positive and significant impact on MSMEs performance

Knowledge and Attitude Towards Fintech Penetration

Age, degree of education, level of income, and cultural background are among the factors that influence a person's knowledge and attitude regarding the penetration of Fintech (Jiang et al. 2021). Individuals who are older and less familiar with technology may have a more critical or cautious view of Fintech. In contrast, those who are younger, more tech-savvy, and comfortable with digital platforms tend to have a more positive view. Since financial technology is still in its early stages, many individuals may lack a comprehensive understanding of its components and operation. However, understanding and awareness are expanding because of the increasing number of individuals who use financial technology products and services (Gai et al., 2018).

The usage of financial technology is spreading rapidly in many countries of the world, and most people are positive toward it. Fintech firms are disrupting traditional financial services by giving customers more user-friendly, affordable, and innovative options. As financial technology progresses, more individuals are expected to familiarize themselves with it and incorporate financial technology products and services into their daily lives (Singh, 2020).

A person's financial education and literacy level may influence favorably and dramatically their attitude towards Fintech (Jiang et al. 2021). Those with a thorough awareness of financial technology and its benefits are more likely to have a positive attitude toward Fintech and be receptive to utilizing the numerous goods and services offered by Fintech companies. Those with a higher level of financial literacy are more equipped to comprehend and assess the potential benefits and risks of adopting fintech products and services than those with a lower level of financial literacy. They are also more likely to make informed decisions regarding their financial needs and goals, which can lead to greater satisfaction with the available fintech solutions.

Those familiar with technology and digital platforms are also more likely to embrace Fintech and feel at ease when utilizing the numerous products and services offered by Fintech organizations (Jiwasiddi et al. 2019). Due to the constant development and rising complexity of financial technology, it may become increasingly vital for clients to have a certain level of technological literacy to navigate and utilize the numerous financial technology products efficiently. The extent of a person's financial literacy and awareness can substantially affect their attitudes regarding Fintech. People can become more knowledgeable consumers and better positioned to take advantage of Fintech's convenience, affordability, and innovation. This can be achieved by increasing financial literacy and expanding awareness of Fintech's benefits (Morgan & Trinh 2021). Therefore, hypothesis five of this study is as follows:

H5a : Knowledgeable MSMEs have a positive and significant impact on attitude on Fintech
H5b : Knowledgeable MSMEs have a positive and significant impact on fintech penetration
H5b : Knowledgeable MSMEs have a positive and significant impact on MSMEs performance

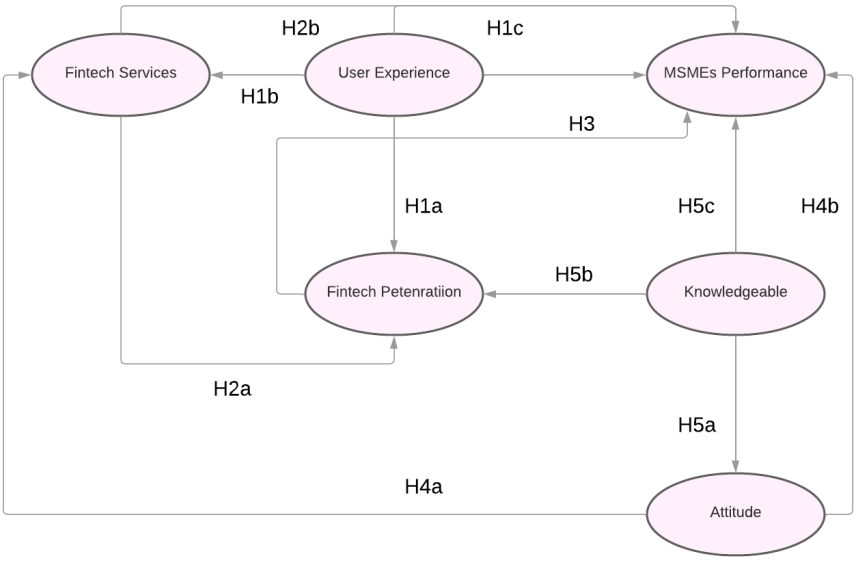

Figure 1. Conceptual hypothesis framework

3. Method

Research Framework

After studying the relevant prior literature, the possible variables were singled out and considered while constructing the research framework. The conceptual model of the framework that was established for this research is shown in Figure 1. This study examines the impact of knowledge and the role of fintech penetration on the performance of micro, small, and medium-sized enterprises (MSMEs) in remote regions of small islands. This study's objective is to examine the impact of knowledge on the performance of micro, small, and medium-sized businesses (MSMEs). This examination of the function of connected elements is made more comprehensive by incorporating several interrelated factors. In presenting this research's findings, attitude delivered fintech services and user experience are also employed to enrich the novel's findings.

Population and Sample of The Study

This study's population consists of fishermen, marine farmers, and micro fisheries entrepreneurs in the Kei Islands region of Indonesia. Kei Islands is located in the coral triangle region, with high marine resources in Indonesia. However,

most of the fishermen and marine farmers in the region live under the poverty line, and one of the main reasons they capabilities of them to adopt new knowledge and technology include managing their finances. In addition, Kei Islands are also located in a remote region in Indonesia, making Kei Islands unnoticed by researchers and government attention. This study's sample size was 200 valid respondents from 210 questionnaires issued to potential respondents. Respondents were drawn from nine fishing villages in this region. The key requirements for the sample used in this study are that they have been in business for at least 6 months, are familiar with financing and financial institutions, and know and are familiar with one of the ICT applications, which include cellular phones with internet access.

Measurement

This nominal scale was used to measure respondents' ages and other factors. An adapted five-point Likert scale categorized responses as 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree) (strongly agree). Respondents can select their position on the proposition using the Likert scale. Most structures and elements came from the literature. Details of the variables' operational definitions are presented in Table 1.

Table 1. Variable Definition

Variable	Definition	Items	Sources
Attitude	Consumer attitude refers to customers' overall feelings, beliefs, and views about a product, service, or brand.	• I prefer to avoid using bank facilities and financial institutions to run a business • I usually borrow money for business capital from one of the villagers who has better financial capabilities* • If I need capital, I know where I will borrow • I know where the locations of banks and financial institutions are • Banks and financial institutions are more trusted by me	Agrawal & Teas (2001); Barbu et al. (2021); Chuang et al. (2016); Venkatesh et al. (2012)
Fintech services	Fintech services are any financial services delivered using cutting-edge technology and digital platforms. Examples of fintech services include online banking and lending between individuals.	• I know that there is a mobile banking facility that can be used on a smartphone • I know where to download the mobile banking application • I know the ways and mechanisms of using the mobile banking application • I know how to use mobile banking • My family and friends use the mobile banking application • I have seen mobile banking information both on my smartphone (social media) and through the related bank	Chuang et al. (2016); Tun Pin et al. (2019)
MSMEs performance	The managerial performance of MSMEs (Micro, Small, and Medium-Sized Businesses) relates to their capacity to become more productive, efficient, and competitive.	• My business is going well and consistently • I know the current financial condition of my business • There have never been any problems due to financial	Najib et al. (2021)

Variable	Definition	Items	Sources
		records in the business that I run • I have never felt that there was business income that was not recorded (recorded) • I can well describe the costs incurred during the one year of business that I run • I know every month how much profit I get	
Fintech penetration	Fintech penetration refers to how consumers and organizations have adopted and utilized fintech services. Fintech penetration evaluates how individuals utilize fintech platforms and applications to manage their accounts, make payments, invest, and gain access to other financial services.	• I have a bank account • I have an account with another financial institution (Credit Union) • I know where the locations of banks and financial institutions in this area • A bank officer once offered me to download a mobile bank application • A bank officer assisted me in using the bank's mobile application better • There is a section on business financing and personal activities that can only be used using the mobile banking application	Barbu et al. (2021); Chuang et al. (2016)
User experience	User experience (UX) is how a user interacts with a product, service, or system. UX in the context of Fintech means how clients feel when they use fintech platforms and services to manage their money.	• I have already registered the use of mobile banking • I once transferred money with the mobile banking facility on my smartphone • I already know how to pay bills with the mobile banking application • I know that there is an application to help calculate business expenses (calculating costs and receipts) • I prefer to pay and be paid with a mobile banking application • I know the features and facilities of mobile banking • I know the difference between mobile banking and internet banking	Agrawal & Teas (2001); Barbu et al. (2021); Chuang et al. (2016)
Knowledgeable	Knowledge of MSMEs on managing business finance refers to a person's knowledge and comprehension of financial matters in their business activities and its different components, including logbook, payments, lending, and accessing financial aid	• I understand the importance of recording business finances • I understand how to record business • I can carry out business records	Lusardi & de Bassa Scheresberg, (2013).

Variable	Definition	Items	Sources
		• I have a business logbook • I can calculate profits and costs in detail in one year • I know that currently, the business is making a profit or a loss	

Data Analysis

Due to the explanation-focused nature of this study, PLS was an acceptable research method. This is similar to the recommendation provided by Hair et al. (2017), which suggests that the measurement models should be independently researched before the structural model is evaluated. The PLS was used because it could show the relationship between all latent constructs simultaneously and account for the measurement errors built into the structural model (Farooq and Markovic, 2016). PLS is reliable whether the sample size is small or large (Hair et al., 2011; Majchrzak et al., 2005). Regarding sample size, power analysis is based on the part of the model with the most predictors. PLS is also useful when there is not much theory about the application. PLS is better when the right model specification cannot be ensured. PLS also makes fewer assumptions about how data is spread out, making it possible to include formative and reflective constructs in the same model. The minimum number of observations should be made between 30 and 100. (Ramayah et al., 2016). The estimation of parameters stays the same as the sample size goes up, ensuring that the data are always presented similarly. It gives the most accurate predictions because it considers much complexity.

4. Result and Discussion

4.1. Socio-economy characteristic

The characteristics of those who participated in this survey are outlined in Table 2, which may be seen here. According to the data presented in the table, the sample consisted of 87,5% male respondents and 12,5% female respondents. Regarding the distribution of ages, the most numerous groups consisted of people between 20 and 40. Moreover, almost half of the respondents were high school graduates; however, the downside was that only 4% were college graduates. This result certainly would affect the effort to increase the knowledge of fishermen and marine farmers both in basic activities and Fintech. Fishermen were the largest respondent category, with 83%, and the monthly income earned was around <IDR. 1,000,000 - IDR. 2,000,000, -.

Table 2. Socio-economy Characteristics

Category	Variable	Frequency	Percentage
Sex	Male	175	87,5
	Female	25	12,2
Age	< 20	1	0.5
	20-30	45	22.5
	30-40	66	33
	40-50	48	24
	> 50	40	20
Education	No education and elementary	53	26,5
	Junior high	42	21
	High school	97	48,5
	College	8	4
Job	Fishermen	166	83
	Marine Farmers	10	5
	Other fishery activities	17	8,5
	Other MSMEs	7	3,5
Income	< IDR. 1.000.000	81	40,5
	IDR. 1,000,000- IDR. 2,000,000	70	39,5
	> IDR. 3,000,000 – IDR. 4,000,000	28	14
	> IDR. 4,000,000 – IDR. 5,000,000	7	3,5
	> IDR. 5,000,000	5	2,5

4.2. Measurement Model

The convergent validity test was carried out at the initial stage of the research study. During this enquiry, the item loadings, average variance extracted (AVE), and composite reliability (CR) were all subjected to in-depth analysis.

The findings are presented in Table 2. Regarding the table that was described, the loadings of the items were higher than 0.6, which meant that they met the value recommended by Hair et al. (2017). Regarding the minimum AVE requirement, the minimum AVE should be more than 0.5. (Hair et al., 2009). Because the AVEs in this study fell within the range of 0.557 and 0.756, we can conclude that they are acceptable. In addition, the value of the CR varied from 0.769 to 0.880, which is, once again, similar to the value indicated by Hair et al. (2009). In the context of exploratory studies, a Cronbach's alpha of > 0.6 is an ideal indicator (Hair et al., 2021). Cronbach's Alpha results for each construct are shown in Table 3. All are greater than 0.6, indicating that the measure employed in this study is reliable.

After completing the convergent validity test, the next step was to examine the test discrimination validity. According to what can be gathered from the existing research, Fornell and Larcker (1981) had previously utilized this test. Notwithstanding this, many people have found fault with the Fornell–Larcker criterion, stating that it cannot validly be used to determine whether there is a lack of discriminant validity in general research scopes (Henseler et al., 2015), as shown in Table 4.

Table 3. Measurement Model

Construct	Items	Loadings	Cronbach's Alpha	AVE	CR
Attitude	A3	0.749	0.755	0.670	0.775
	A4	0.868			
	A5	0.833			
Fintech services	FS1	0.908	0.926	0.774	0.929
	FS2	0.919			
	FS3	0.906			
	FS4	0.824			
	FS5	0.837			
MSMEs performance	MP1	0.830	0.913	0.698	0.915
	MP2	0.860			
	MP3	0.851			
	MP4	0.785			
	MP5	0.808			
	MP6	0.875			
Fintech penetration	FP1	0.744	0.857	0.591	0.869
	FP2	0.670			
	FP3	0.609			
	FP4	0.858			
	FP5	0.875			
	FP5	0.820			
User experience	UX1	0.915	0.956	0.795	0.960
	UX2	0.915			
	UX3	0.942			
	UX4	0.861			
	UX5	0.788			
	UX6	0.934			
	UX7	0.874			
Knowledge	K1	0.830	0.905	0.698	0.909
	K2	0.860			
	K3	0.851			
	K4	0.785			
	K6	0.875			

Table 4. Fornell-Lacker Criterion

	Attitude	Fintech services	MSMEs	Fintech Penetration	User Experience Fintech	Knowledge
Attitude	0.818					
Fintech services	0.365	0.880				
MSMEs	0.535	0.728	0.769			
Fintech penetration	0.344	0.827	0.684	0.891		
User Experience Fintech	0.464	0.372	0.521	0.412	0.852	
Knowledge	0.550	0.273	0.495	0.345	0.733	0.835

Ramayah et al. (2016) have proposed that the R^2 value measures the structural model's precision. Similarly, Hair et al. (2011) indicate that R^2 can be used to estimate both the significance level of the path coefficients (beta values) and the coefficient of determination. The coefficient of determination (R^2) for the obtained data was 0.601, indicating that attitudes, knowledge, fintech services, fintech penetration, and user experiences can account for 60.1% of the variance in MSMEs performance. As for F-squared, the result showed a strong impact of knowledge on the performance of MSMEs for about 0.576. In contrast, other variables had a weak effect on the performance of MSMEs. In addition, there was also a strong effect of user experience and fintech services available. The q-square result of the model was 0.96 means that the model has a relevant predictive explanation.

4.3. Hypothesis Testing

Table 5. Path Analysis

	Coefficient	P value	Hypothesis	Decision
User Experience Fintech -> Penetration	-0.009	0.949	1a	Rejected
User Experience Fintech -> Fintech services	0.868	0.000	1b	Accepted
User Experience Fintech -> MSMEs	0.242	0.165	1c	Rejected
Fintech services -> Penetration	0.696	0.000	2a	Accepted
Fintech services -> MSMEs	-0.449	0.049	2b	Accepted
Penetration -> MSMEs	0.196	0.285	3	Rejected
Attitude -> Fintech services	0.076	0.136	4a	Rejected
Attitude -> MSMEs	0.278	0.003	4b	Accepted
Knowledge -> Attitude	0.554	0.000	5a	Accepted
Knowledge -> Penetration	0.301	0.000	5b	Accepted
Knowledge -> MSMEs	0.615	0.000	5c	Accepted

Note: *p < 0.05; *** p < 0.01.

In Table 5, the findings of the path analysis indicate that six hypotheses are accepted. Knowledge has a very substantial impact on the success of MSMEs in general. Table 6 and Figure 2 show that knowledge promotes the favorable attitude of potential fintech customers and indirectly enhances the performance of MSMEs in this region. An additional important finding of this study is that a great user experience can boost the penetration of Fintech through a better understanding of the various fintech services.

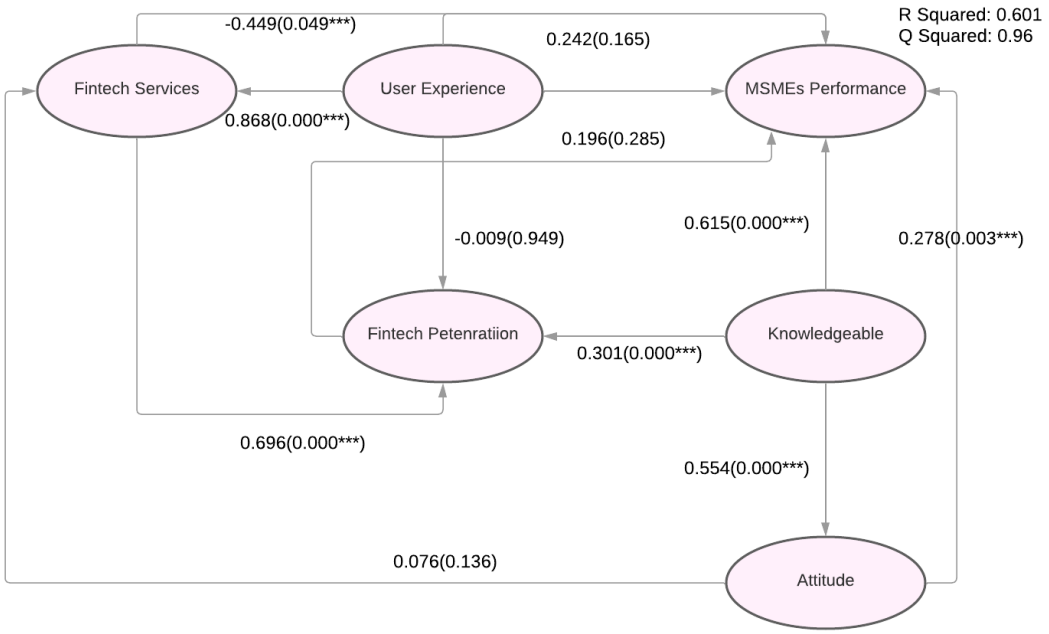

Figure 2. Hypothesis results

Table 6. Indirect Effect

Specific indirect effects	Value	P Value
Attitude -> Fintech services -> Penetration -> MSMEs	0.010	0.515
User Experience Fintech -> Penetration -> MSMEs	-0.002	0.962
Knowledge -> Attitude -> MSMEs	0.154	0.009***
Knowledge -> Attitude -> Fintech services -> Penetration	0.029	0.211
Knowledge -> Attitude -> Fintech services	0.042	0.153
User Experience Fintech -> Fintech services -> Penetration -> MSMEs	0.119	0.339
Fintech services -> Penetration -> MSMEs	0.137	0.340
Knowledge -> Attitude -> Fintech services -> Penetration -> MSMEs	0.006	0.532
Knowledge -> Attitude -> Fintech services -> MSMEs	-0.019	0.316
Attitude -> Fintech services -> Penetration	0.053	0.193
Knowledge -> Penetration -> MSMEs	0.059	0.300
User Experience Fintech -> Fintech services -> MSMEs	-0.389	0.048***
User Experience Fintech -> Fintech services -> Penetration	0.604	0.000***
Attitude -> Fintech services -> MSMEs	-0.034	0.299

Note: *p < 0.05; *** p < 0.01.

Discussion

In addition to the production of new financial goods and services, the concept of financial inclusion encompasses four other aspects: the broadening of people's access to financial resources; the availability of financial goods and services; the utilization of various financial service products; and the improvement of the quality of both the utilization of financial goods and services as well as the production of financial goods and services themselves. Platforms for Fintech can assist financial institutions by enhancing and automating their procedures, providing capabilities for collaboration, and making it less difficult to provide loans to those who were not previously bank customers (Abbasi et al., 2023). Fintech has contributed to an improvement in the operational efficiency of micro, small, and medium-sized firms.

Knowledge may help micro, small, and medium-sized firms (MSMEs) innovate new ideas, become more efficient, increase customer satisfaction, develop more effective marketing strategies, and manage their finances more effectively. By investing in information and being abreast of the trends and best practices common in their sector, MSMEs have the potential to improve their performance and achieve long-term success. As financial technology develops further, it is expected that more and more people will be aware of it and able to use it regularly (Singh, 2020).

Knowledge can significantly and positively affect the performance of Micro, Small, and Medium-Sized Businesses (MSMEs). Knowledge may assist MSMEs in developing new concepts and innovating. By staying current with the most recent industry trends and technologies, MSMEs may develop new goods and services, enhance their processes, and remain competitive. In addition, knowledge can assist MSMEs in optimizing their processes and becoming more efficient. By understanding best practices and industry standards, MSMEs can streamline their processes, decrease waste, and increase profitability. In addition, knowledge helps improve the financial management of MSMEs. By comprehending financial ideas and principles, MSMEs can improve their budgeting and forecasting methods, enhance their cash flow management, and make more educated investment decisions. Financial technology enables faster and more effective transactions, reducing the time and resources necessary to complete transactions (Berg et al., 2022). It also increases the visibility and openness of their financial transactions, enabling more informed decision-making (Jünger & Miethe, 2020).

The ease of use, the amount of knowledge clients have about financial technology, and their attitudes toward financial technology are all crucial factors that may impact the acceptance and utilization of financial technology solutions. FinTech organizations may improve the adoption and usage of their products and services by delivering user-friendly and intuitive solutions, educating clients about the benefits of adopting Fintech, and establishing confidence by implementing transparent and secure solutions.

Financial technology is another aspect that influences the sustainability of MSME firms (financial technology). With the advent of the digital age, internet corporations, technology firms, and financial technology institutions are actively employing digital technology to empower finance. Constantly inventing new business models, pushing the transformation and upgrading of conventional financial institutions, and boosting capacities by driving digital financial technologies for economic development, they are driving the development of digital financial technologies (Su et al., 2021). During the Covid-19 pandemic, financial literacy and financial technology enabled the pace of the digital transformation of MSME players to strengthen the sustainability of MSME firms. The study results indicate that financial literacy and financial technology influence the business continuity of MSMEs. However, financial literacy does not significantly impact the long-term viability of MSMEs, particularly during the Covid-19 pandemic.

The rise of fintech companies offering online loans is one use of contemporary financial technology advancements (P2P Lending). The proliferation of conveniently available and disbursal online financing options makes MSME actors interested in borrowing funds for business capital needs (Winarto, 2020). Most online loan borrowers are

comprised of workers, farmers, fishermen, and MSMEs (Budiyanti, 2019). Therefore, it is important to increase knowledge through literacy of Fintech because Fintech has proven its resilience and positive contribution to MSMEs overall performance.

5. Conclusion

As seen by its growth in developing nations, the financial technology sector, also known as Fintech, is rapidly expanding. As an increasing number of persons in developing nations have access to mobile devices and the internet, fintech companies are building solutions to meet the unique monetary needs of the local populace. Included in this category are microfinance, insurance, and mobile payment solutions. The recent impact of Fintech on micro, small, and medium-sized enterprises (MSMEs) in distant areas, such as small island regions, has not yet met expectations. Due to factors including awareness, penetration, and availability of fintech services, the impact of Fintech on the performance of MSMEs in small islands is limited.

The findings show that knowledge has both direct and indirect good and substantial effects on the overall managerial performance of marine farmers and fishermen. These effects were beneficial and significant. Also, the user experience can potentially increase the rate of rapid adoption of Fintech, ultimately leading to an increase in the performance of MSMEs in regions with a limited number of islands. This study highlights the significance of having a grasp of Fintech to boost the adoption and influence of Fintech among MSMEs in faraway regions. The region's micro, small, and medium-sized enterprises, also known as MSMEs (also shortened as MSMEs), have a significant need for financial support.

The implication of the study for the local and central government of Indonesia is to pay more attention to increasing the knowledge of either basic knowledge of managing their business or also risk, benefit, and services of Fintech to micro and small enterprises, especially in the remote area include the rural area of Indonesia. This study showed that doing so would increase the chance of MSMEs in remote areas using Fintech. Therefore, the intention and program of the central government to make all the MSMEs in Indonesia enter digital mode can be possible.

However, this study also has limitations in terms of the study case. Before it can be determined, MSMEs actors in remote regions only need knowledge of basic managing their business and fintech services. For instance, more studies need to be done in other remote areas such as the highland region, to have a better view of the tendency towards Fintech of MSMEs in remote areas.

Author Contribution

Author 1: conceptualization, writing original draft, formal analysis, methodology, supervision, visualization.

Conflict of Interest

The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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