

## **Fintech intervention in micro financing in agriculture sector in Malaysia**

(Intervensi Fintech dalam pembiayaan mikro dalam sektor pertanian di Malaysia)

Ahmad Zairy Zainol Abidin\*, Mohd Tarmizi Haimid, Hairazi Rahim@ Abdul Rahim, Syahrin Suhaimie, Siti Zahrah Ponari, Farith Fariq Hashim, Nuruddin Mohamad Isa and Wan Nur Izzaty Wan Izanni

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### **Abstract**

The agricultural sector in Malaysia faces significant challenges in accessing financing, largely due to the stringent requirements of traditional banking systems. This study proposes a Fintech peer-to-peer (P2P) lending model system as an innovative solution to bridge this gap, aims to overcome these barriers by offering three types of investment portfolios: financial capital, agricultural inputs and technology. The involvement of service providers is crucial, acting as intermediaries to ensure smooth transactions between investors and farmers. Additionally, the model emphasises the importance of deferred returns, aligning with the agricultural cycle, and incorporates agricultural insurance to protect against potential risks such as crop failure or natural disasters. The government's role is highlighted as critical in establishing supportive policies and providing regulatory oversight to safeguard the system against misuse. The study also underscores the need for increased farmer education on the benefits and processes of alternative financing options like Fintech P2P lending. While the proposed model offers a promising pathway to enhance financial inclusion for farmers, its success hinges on robust collaboration between government agencies, service providers, and the farming community. Further research is required to optimise the model and ensure its effective implementation in the Malaysian agricultural landscape.

### **Introduction**

Micro financing between farmers is among the primary beneficiaries of government financial assistance, which is generally advantageous in the short term. However, environmental risks such as weather conditions and financial capacity pose significant barriers to the continuation of agricultural activities. There is a strong correlation between the ability to successfully carry out agricultural activities and the readiness of banks or lending

institutions to provide credit, due to the high level of unforeseen risks. According to Shafiau and Moi (2015), financiers are often reluctant to finance or invest in the agricultural sector because it is exposed to natural risks such as floods, droughts and wildlife attacks. This situation forces farmers to seek financial assistance from middlemen or brokers. Consequently, to sustain their agricultural operations, farmers tend to borrow from family, friends, and individuals with vested interests in their

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\*Socio-Economy, Market Intelligence and Agribusiness Research Centre, MARDI Headquarters, 43400 Serdang, Selangor, Malaysia

e-mail: zairy@mardi.gov.my

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crops rather than from banking institutions. This fondness is attributed to the ease of access and flexibility in repayment terms offered by these informal sources.

Several institutions offer financial assistance and loans, but they rarely favour the agricultural sector. A study by Suraya et al. (2012) identified the weaknesses of these institutions, which include: i) fixed repayment periods that do not align with the planting cycle, ii) uniform interest rates across all types of agricultural commodities, without differentiation by crop type, and iii) fixed grace periods that are not flexible based on the planting cycle.

The agricultural finance sector plays a crucial role in contributing to the nation's food supply and food security, driving economic growth and national prosperity, and reducing poverty. The rapidly evolving technological landscape opens up new opportunities for targeting and pricing credit, sharing risks, and leveraging information technology to enhance agricultural productivity. According to Ningrat and Nurzaman (2019), Oxford Business Group (2018), and McIntosh and Mansini (2018), the agricultural financial market has stalled or been affected by the following factors:

1. Inadequate and/or ineffective policies.
2. High operational costs, particularly in remote rural areas.
3. Covariance between production, market, and price risks.
4. Absence of risk management instruments.
5. Low demand levels due to fragmented demand within existing value chains.
6. Limited expertise among financial institutions in managing agricultural loan portfolios, such as restricted access to credit and inputs.

However, the technological landscape related to financial services is rapidly changing, and the financial industry has begun to adapt to these advancements in line with the modernisation and accessibility of available technology. Financial Technology

(Fintech) creates new opportunities to specifically secure loans, assess and spread risks, and to organise agricultural value chains. Fintech is a crucial application that drives research innovation across sectors, including agriculture, and is designed to facilitate transactions in the financial sector with an emphasis on transaction costs. The impact of Fintech extends to all levels of society, from consumers to agricultural entrepreneurs.

Fintech and its financial services can help the agricultural sector compete in the global economy through crowdfunding, mobile payments, money transfers, loans, fundraising, asset management, and bill payments (Anshar et al. 2019). Fintech also facilitates the implementation of e-agriculture, which has become an action plan under the World Summit on the Information Society (WSIS), with the Food and Agriculture Organization (FAO) responsible for its execution. According to a study by Azman et al. (2020), Fintech:

1. Is widely accepted as a medium for financial transactions.
2. Offers new products, services, and technologies, indirectly impacting monetary stability, financial system efficiency, and the smoothness, security, and reliability of payment systems.
3. Plays a role in economic development and financial systems.
4. Provides new sources of profit from high sales volumes and lower transaction costs.
5. Accelerates the implementation of risk-sharing.
6. Creates a positive perception among SMEs and start-ups regarding financial technology instruments.

This technology has the potential to revolutionize the agricultural finance sector by addressing the limitations of traditional financial institutions. Microfinance has thrived in Indonesia, and mobile banking in the Philippines, both of which have relatively underdeveloped formal financial

systems. Digital currencies dominate in the People's Republic of China (PRC), where low credit card penetration has hindered the use of credit cards in online commerce (McIntosh and Mansini, 2018). Thus, the existence of Fintech in the digital market can address the financial problems that farmers often face and promote public investment in agriculture.

However, in Malaysia, the adoption of Fintech remains relatively low, especially in the processes of loan application, verification, and disbursement. This study underscores the need to address the bureaucratic barriers within the banking system, the difficulties farmers face in obtaining loans, and the potential benefits of integrating Fintech into agricultural financing. By embracing Fintech, the agricultural sector could see improved access to financial resources, reduced reliance on high-collateral loans, and a more efficient process that better supports farmers in sustaining their agricultural operations.

## **Background**

Microfinancing refers to the provision of access to small amounts of credit for the poor and those without collateral, financial records, or credit history. In many countries, microfinancing has proven to be an effective tool in enabling low-income segments of society to borrow and start small businesses.

Microfinancing is not a new concept in Malaysia. It was introduced to provide financial services to the poor and Small and Medium Enterprises (SMEs) and to help them start businesses. Microfinancing plays a crucial role in assisting SMEs that have limited access to loans from financial institutions. This program has been managed by credit unions, cooperative banks, and the banking sector (Haque et al. 2019).

Equity Crowdfunding (ECF) and peer-to-peer (P2P) financing platforms have emerged as alternative sources of financing for businesses, particularly SMEs. As of 2022, nine ECF platforms and ten P2P financing platforms have been approved by

the Securities Commission Malaysia (SC), with two of which offer Shariah-compliant products: Ethis Ventures Sdn Bhd (ECF) and MicroLEAP (P2P). However, this study finds that Fintech platforms have only financed a few agricultural projects in Malaysia, including funds provided to a smart farming business in Sabah by MicroLEAP. The challenges of establishing a P2P microfinancing platform in Malaysia will be discussed later in this report.

This study aims to explore the use of Fintech applications, particularly P2P and microfinancing, among farmers in Malaysia. It will study the acceptance and adoption of the P2P Fintech model in microfinancing and propose a Fintech-based microfinancing ecosystem for crop financing. This study highlights the potential for Fintech to complement traditional microfinancing methods, addressing the challenges faced by farmers in accessing credit and supporting the growth of the agricultural sector in Malaysia.

## **Methodology**

### ***Study concept***

This study is evaluated using the "Behavioural Science of Fintech" concept, which incorporates two key elements: habitual complacency and lack of trust. Fintech is seen as offering various benefits compared to traditional financial management, especially in terms of accuracy in handling finances. However, Fintech faces two significant practical challenges among users: i) initial user adoption, and ii) encouraging existing users to utilise premium services.

Early user adoption is crucial for Fintech companies as they aim to acquire new users. Although a lack of awareness about Fintech products can be a barrier to adoption, it is often not the primary reason users avoid existing financial management services. Some users distrust Fintech due to perceptions that managing their money through these platforms is difficult or unsafe.

Therefore, understanding why users opt for alternative products and how to encourage them to switch is a critical challenge for Fintech.

Encouraging existing users to upgrade to premium services is about taking the use of digital applications to the next level in managing their financial lives. One of the main drivers for attracting new users to Fintech is the lower cost of services compared to traditional banks or other financial institutions. Focusing on providing low-cost, even free, services is a strategy for generating revenue. Consequently, Fintech service providers need to consider other ways to offer their products, such as selling premium versions or offering additional services.

To clarify this concept, two elements — 1) habitual complacency and 2) lack of trust—are used to explain how Fintech can drive new user adoption and offer premium services to existing users.

Habitual complacency refers to the approach of reducing reliance on conventional financial management methods. Users accustomed to managing their finances through traditional services are less likely to explore new financial alternatives, even when cheaper, more convenient, and more efficient options are available. Therefore, it is crucial for Fintech to understand how to overcome and disrupt potential users' habits concerning conventional financial services.

The lack of trust element refers to the various concerns about data privacy, financial protection, and regulatory accountability that exist in the Fintech world. These concerns are causing many people to distrust Fintech as a viable alternative to their current financial providers. This element can have a positive or negative impact on their risk perception regarding digital financial services. To overcome this distrust, it is necessary to provide reliable sources of information and link products to trusted institutions and organisations to enhance existing confidence.

Figure 1 summarises the aspects taken into account in the two elements mentioned.

### Research methodology

This study was conducted in four groups, as described in Table 1, from January 2023 to May 2023.

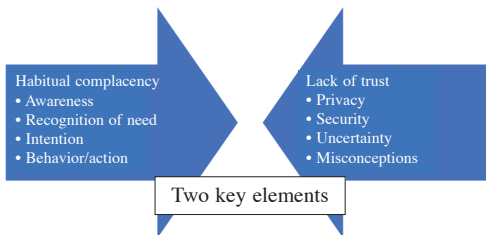


Figure 1. The two key element in Behavioural Science of Fintech

### Findings and discussion

#### Fintech applications and microloans among farmers in Malaysia

Microloans related to agriculture in Malaysia have traditionally been available to farmers through commercial banking institutions. A total of 11 commercial banks offers microloans to farmers. However, not many farmers are inclined to obtain loans from commercial banks due to difficulties in providing collateral and making repayments within the stipulated time frame. While some farmers do take out loans from these commercial banks, these loans are typically intended for infrastructure development rather than operational expenses. There are also farmers who do not require infrastructure development loans but rather financial support for operational costs, which cannot be facilitated through these banking loans.

Loans from other institutions, such as cooperatives and financial organisations, also serve as alternatives for farmers seeking necessary financing. However, there are very few financial institutions that offer loans to the agricultural sector. Three institutions have been identified as providing microloans to the agricultural sector in Malaysia, as shown in Table 2.

Table 1. Breakdown of study groups and description of methodology

Group	Data collection method	Source of information/target group	Purpose	Analysis
Government	Literature review	Securities commission malaysia (SC)	To obtain insights from the governments and legal perspective	Content analysis
Investors*	Survey	Investors with excess funds willing to invest in medium to high-risk ventures	To gauge investors' perceptions if offered agricultural investments via Fintech	Descriptive analysis
Service providers	Interviews	Fintech service companies offering P2P to the public, listed by SC	To obtain service providers' perceptions of offering agricultural investment portfolios.	Content analysis
Borrowers (farmers)	Interviews	Leaders of farmer groups or cooperatives across various commodities	To understand farmers' perceptions if offered Fintech-based loan facilities	Content analysis

\*Investors represent a group of investors directly contacted within a closed online investment group who agreed to participate as respondents in this study

Table 2. Financial organisations offering microloans to the agricultural sector in Malaysia

Institution	Amanah Ikhtiar Malaysia (AIM)	TEKUN Nasional (TEKUN)	Yayasan Usaha Maju (YUM)
Targeted borrowers	Women	Both men and women	Primarily women, limited to Sabah residents
Eligibility criteria	Low-income and hardcore poor	Moderate, low-income, and hardcore poor	Low-income and hardcore poor
Loan method	Group lending	Individual lending	Individual lending
Loan amount	Min: RM1,000; Max: RM20,000	Min: RM500; Max: RM50,000	Min: RM500; Max: RM20,000
Repayment period	1 week after receiving funds	Flexible depending on the project	1 – 2 weeks after receiving funds
Management fees	10%	4%	10 – 18% (depending on loan duration)

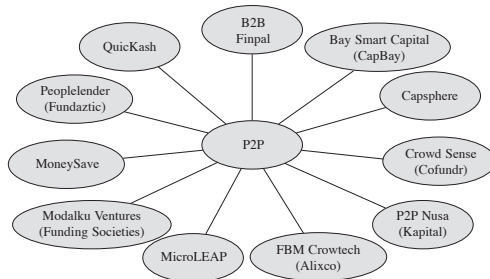
While Malaysia has various resources to engage in physical financing systems, digital financial systems offer an alternative to existing borrowers, such as Digital Investment Management (DIM), Equity Crowdfunding (ECF), Peer-to-Peer (P2P) Financing, Digital Assets, and E-Services. This study focuses on the peer-to-peer (P2P) approach, where P2P financing is a form of digital innovation that expands business capabilities to obtain funding from investor groups through online platforms. Similar to traditional loans, P2P financing investors provide capital in exchange for interest payments and principal repayment. P2P lending involves investors lending money to individuals and businesses through online platforms, allowing borrowers to obtain loans without going through stringent bank requirements.

P2P lending generally promises higher returns than traditional investments, but investors also take on higher risks. There are currently 11 institutions offering P2P Fintech financing, all regulated by the Securities Commission Malaysia (SC). *Figure 2* lists the companies registered with the SC as of July 2022.

However, none of these 11 companies currently offer any form of loans to the agricultural sector due to the absence of a loan portfolio offering for agriculture. Loan portfolios are typically issued by companies based on borrower applications. However, at the time of this study, no P2P companies were offering an agricultural loan portfolio online.

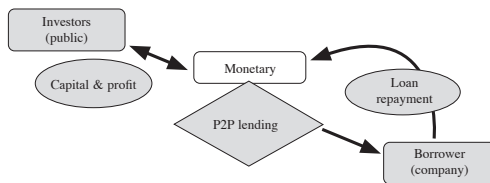
Engagement with three companies—i) Microleap Plt, ii) FBM Crowdtch (Alixco), and iii) Capsphere—revealed that P2P Fintech loans are provided to registered companies, not directly to farmers. This is a requirement set by the SC. Therefore, farmers interested in P2P loans must have a registered company with financial accounts or go through farmer organisations with financial records. The loan structure offered is more about financial support through advertised investor portfolio proposals, with

investors deciding to invest based on their capacity and preference for portfolios they perceive to be profitable. *Figure 3* provides a brief overview of how the P2P loan system operates in Malaysia during the period of this study.



Source: Securities Commission. Accessed on 7 July 2022

*Figure 2. List of P2P companies registered with the securities commission*



*Figure 3. Current P2P lending system in Malaysia*

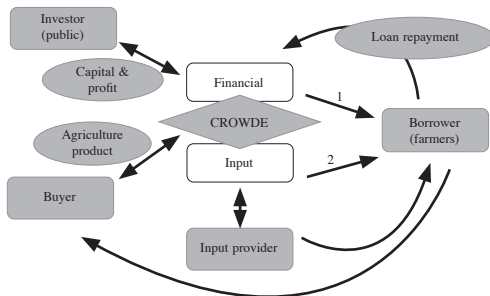
### ***Fintech applications and microloans among farmers abroad***

In light of the development of Fintech in Malaysia, this study also explores the potential in neighbouring country Indonesia, which has implemented Fintech in the agricultural sector. Several Fintech service providers in Indonesia offer Crowdfunding and Peer-to-Peer (P2P) services, which are increasingly becoming the alternative choice for borrowers alongside the existing banking system. A few companies have been identified as offering services to the agricultural sector, with relevant feedback obtained from two companies: Crowde and Koltiva.

Crowde, an Indonesian Fintech lending company, offers a P2P loan system specifically for the agricultural sector. The

system provides two types of loans to farmers: financial loans and agricultural inputs. Crowde offers cash loans to farmers with the condition that they are used solely for operational purposes and repaid based on the agricultural produce pledged as collateral. Through Crowde's, collaboration with input suppliers allows farmers who wish to secure loans for purchasing inputs can purchase those inputs directly from suppliers registered with Crowde.

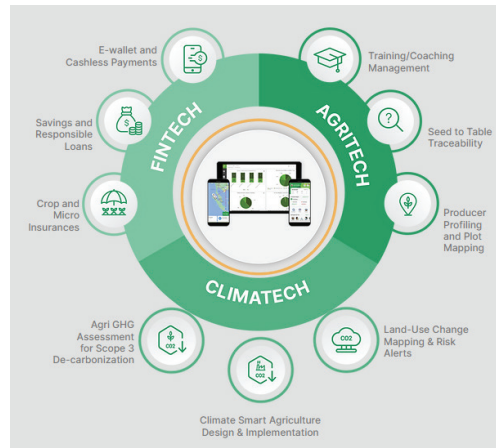
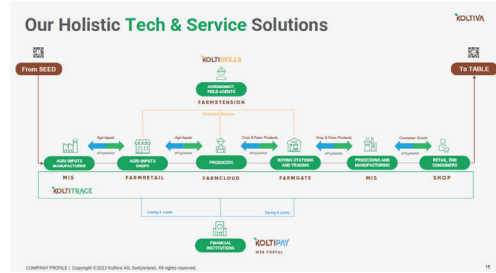
To raise the capital required for providing financial and input-based loans, Crowde attracts investors to invest in portfolios developed by the company, based on the requests submitted by farmers. Investors then receive returns on their investments. Additionally, Crowde offers services that assist in selling agricultural products directly to consumers, with the proceeds being used to repay the loans taken by farmers. A flowchart summarising Crowde's P2P lending system is shown in Figure 4.



Source: <https://crowde.co/en>

Figure 4. P2P Lending system by Crowde, Indonesia

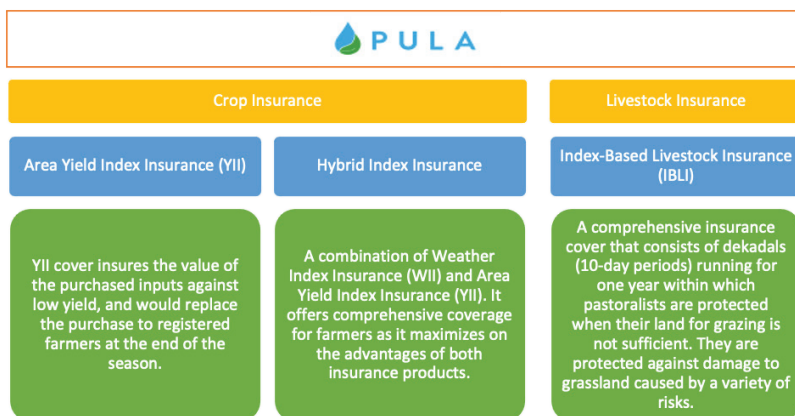
In contrast to Crowde, Koltiva, another Indonesian company, offers a comprehensive integrated traceability system for the agricultural sector. Koltiva has developed a complete value chain, offering services ranging from farm-level financing to consumer delivery. Figure 5 illustrates the services provided by Koltiva.



Source: <https://www.koltiva.com/>

Figure 5. P2P Lending system by Koltiva, Indonesia

The study also found that companies also play a role in offering agricultural insurance systems, which reduce the risk for investors and reassure borrowers (farmers) when using these alternative loans. Pula Advisors, is an agricultural insurance and technology company that delivers innovative agricultural insurance and digital products to help smallholder farmers manage risks, improve farming practices, and increase their income over time. Founded in Africa, Pula has begun expanding its operations into Asia. The company provides crop and livestock insurance services, with a particular focus on disaster-related coverage, as shown in Figure 6.



Source: <https://www.pula-advisors.com/>

Figure 6. Agricultural Insurance System by PULA

**Exploring the acceptance and adoption of Fintech models in microloans**

The approach to implementing P2P microcredit must take into account the acceptability of the ecosystem, particularly whether introducing a P2P Fintech IoT lending system to farmers is feasible. Therefore, four key stakeholder groups have been identified, whose perspectives need to be assessed to determine whether the P2P financing system for microloans can be successfully implemented (Figure 7).

These four groups are assessed based on two elements within the concept of the “Behavioural Science of Fintech”: habitual complacency and lack of trust. The study’s findings will summarise the results for each group, except for the “Government” group, as the findings related to this group involve existing policies and do not include other discussed findings.

**a) Acceptance at the government level**

The government strongly supports the implementation of microcredit using a Fintech approach. This is evidenced by the

establishment of regulatory oversight by the Securities Commission Malaysia (SC) under Bank Negara Malaysia to monitor and regulate the operations of Fintech companies within the country. The SC focuses on facilitating financing channels such as equity crowdfunding (ECF) and peer-to-peer (P2P) financing, which can bridge the gap in providing alternative sources of capital for micro, small and medium enterprises to finance early-stage business development, business expansion, working capital and other financial needs. Additionally, the SC has allowed ECF and P2P financing platforms to operate in secondary trading and encourages the offering of more financial products to the growing online trading community within the country. Thus, the government has indeed established and provided the necessary requirements and guidelines to address the era of Fintech-based microloans. The two elements discussed—habitual complacency and lack of trust—highlighted in this concept have been considered and addressed.



Figure 7. Four groups in the success of P2P fintech lending



**b) Acceptance at the investor level**

A total of 41 potential investors who have previously invested in online financial systems were selected as study respondents. These investors belong to a target group with surplus funds who are willing to invest at moderate to high risk levels. Their feedback showed that the existing platforms instilled confidence for conducting online investment transactions based on both elements. They have already engaged in online financial transactions such as online banking. However, their inclination to invest in the agricultural sector was secondary to the technology sector. They also noted that if investment returns could be achieved within 6 – 12 months (31.7%), they would still be inclined to invest in the agricultural

sector, despite 30.6% of them indicating that such investments carry a high risk of not achieving maximum output, and 27.4% expressing concern about the potential increase in agricultural costs in the future.

The tendency among these investors suggests that when implementing the Fintech model in microloans, assurances to reduce the risk of repayment failure should be clearly stated in the initial offering portfolio. This could attract more investors to the agricultural sector, either through the P2P approach (for working capital) or Equity Crowdfunding (for seed capital). *Table 3* summarises the investor feedback on each element stated in the “Behavioral Science of Fintech” concept.

Table 3. Acceptance at the investor level based on the “behavioral science of fintech” concept

Element	Statement	
Habitual complacency	Awareness	<ul style="list-style-type: none"> <li>Utilising online transfers (43%) and QR code transfers (12%)</li> <li>61% of respondents agreed with the use of P2P for investment in operational capital</li> <li>39% agreed with equity crowdfunding for seed capital</li> </ul>
	Recognition of need	<ul style="list-style-type: none"> <li>Investment in the agricultural sector was the second choice (18.8%) after technology (19.7%), followed by plantations and commodities (14.5%)</li> </ul>
	Intention	<ul style="list-style-type: none"> <li>Preference for reinvestment within 6 – 12 months (31.7%)</li> <li>39.7% are inclined to invest in agricultural technology, 31.5% in cash, and 28.8% in agricultural inputs</li> </ul>
	Behaviour/action	<ul style="list-style-type: none"> <li>40% stated that online transactions are easy to manage</li> </ul>
Lack of trust	Privacy	<ul style="list-style-type: none"> <li>27% still conduct transactions in cash, and 18% use third parties to manage investment transactions</li> <li>43% have used online investments, and 12% continue to use QR codes</li> </ul>
	Security	<ul style="list-style-type: none"> <li>High risk of not achieving maximum output (30.6%) and increasing agricultural costs (27.4%)</li> <li>95% of investors are more confident to invest if agricultural insurance is included</li> </ul>
	Uncertainty	<ul style="list-style-type: none"> <li>Only 16.9% were aware of P2P and 15.5% of ECF. The majority (25.4%) knew about Digital Brokers, and 23.9% knew about Digital Investment Managers</li> <li>59% indicated that the risk of default was moderate, 22% low, 12% high, and 7% very high</li> </ul>
	Misconceptions	<ul style="list-style-type: none"> <li>7% stated that the likelihood of repayment failure was very high</li> </ul>

### **c) Acceptance at the service provider level**

Service providers play a crucial role as intermediaries between digital platforms and reality, offering a bridge for investors and borrowers to connect, while also providing suitable investment portfolios for both parties. The applications requested by borrowers are compiled into an investment portfolio, which is then offered to investors as a guide for their investment decisions. Once both parties agree, the service provider finalises the investment and disburses the invested funds to the borrower under the terms of profit and repayment period agreed upon by both parties. Additionally, service providers ensure that borrowers repay the loans through the agreed upon methods, whether through buy back agreements or cash payments.

Interviews with three service providers, namely 1) Microleap Pte., 2) FBM Crowdtech (Alixco) and 3) Capsphere, revealed that they are generally willing to offer these services to both parties using P2P or crowdfunding approaches. For operational loans, they agreed that P2P is more suitable than crowdfunding, as the latter is better suited for start-up capital. The service providers indicated that they could offer portfolios tailored to the needs of the agricultural sector, with investments as low as RM50 for investors and loans as low as RM1,000 for borrowers. However, they emphasised the importance of guaranteeing returns to investors and ensuring that borrowers can repay the agreed amounts. Privacy and security guarantees are also provided to investors, as these are key factors in instilling confidence among investors. To prevent fraud, currently, only borrowers registered with the Companies Commission of Malaysia (SSM) are allowed to apply for loans. However, service

providers are committed to eventually extending these loans to individuals and the agricultural sector. *Table 4* summarises the feedback from service providers on each element of the “Behavioral Science of Fintech” concept used in the study.

### **d) Acceptance at the borrower's (farmer) level**

Acceptance at the borrower or farmer level was derived from feedback obtained through interviews with four farmers who grow chillies, paddy, rock melon and *Harumanis* mangoes. These farmers are members of registered organisations or companies for selected commodities. The feedback revealed varying levels of knowledge about microloans through Fintech among these farmers. It turned out that paddy farmers, unlike chili, mango and rockmelon farmers. However, only rock melon and chili farmers had an understanding of how Fintech-based loans work. Nevertheless, all farmers indicated that Fintech microloans were not yet necessary, as they were still comfortable with conventional loan application methods. They were unclear about the procedures and application processes involved, and lacked confidence in the concept of Fintech microloans. Although they were familiar with online banking, they remained sceptical about the overall concept and system of loans specifically for farming. Furthermore, they expressed a lack of interest in having specific investors involved in their farming processes, as they did not want to be bound by the demands of investors who are more focused on profits, whereas the agricultural sector does not guarantee consistent yields. *Table 5* summarises the feedback from farmers (borrowers) on each element of the “Behavioral Science of Fintech” concept used in the study.

Table 4. Acceptance at the service provider level based on the “behavioural science of Fintech” concept

Element	Statement	
Habitual complacency	Awareness	<ul style="list-style-type: none"> <li>The public has begun to adopt the P2P fintech lending approach as an alternative to conventional loans</li> </ul>
	Recognition of need	<ul style="list-style-type: none"> <li>Alternative platforms for loans have been provided with the introduction of P2P lending</li> <li>Encourages investors to invest with a minimum amount of RM50</li> <li>Encourages borrowers to borrow a minimum of RM1,000</li> </ul>
	Intention	<ul style="list-style-type: none"> <li>Meeting the needs of borrowers who require a quick and easy loan process (&lt;1 month)</li> </ul>
	Behaviour/action	<ul style="list-style-type: none"> <li>Simplifying the loan process through the use of online systems</li> <li>Offering free financial management and accounting apps to borrowers</li> </ul>
Lack of trust	Privacy	<ul style="list-style-type: none"> <li>Ensures the privacy of borrowers and investors by not disclosing their identities to each other</li> </ul>
	Security	<ul style="list-style-type: none"> <li>Some companies offer personal insurance to secure investors’ funds</li> <li>This personal insurance provides a guarantee to borrowers in case of death</li> </ul>
	Uncertainty	<ul style="list-style-type: none"> <li>Offers conventional and Islamic investment notes</li> <li>Open investment segments for the agricultural sector are currently unavailable due to the lack of guaranteed returns. However, some have started offering it to the agricultural sector with 100% investor funding</li> </ul>
	Misconceptions	<ul style="list-style-type: none"> <li>Only available to those registered with the Companies Commission of Malaysia (SSM) and not to individuals</li> </ul>

## Recommendation

### *Proposed agricultural financing system using Fintech in Malaysia*

Based on the feedback from the four studied groups, several issues need to be addressed before implementing a new agricultural financing system. The concerns regarding the lack of confidence among borrowers in micro-financing through Fintech must be addressed to ensure that the initiative makes it easier for farmers to obtain the necessary loans, whether for initial capital or working capital, in a clear and understandable manner. The involvement of farmers who are not registered with any entity also needs improvement, as not

all farmers are capable of registering with the Companies Commission of Malaysia (SSM). Alternatively, exemptions could be considered for farmers who are members of cooperatives or registered organisations as an alternative.

From the investors’ perspective, confidence and assurance of returns are crucial factors in deciding whether to invest in the agricultural sector. Although there is a significant inclination to invest in agriculture, investors still focus on the returns they can expect. The portfolios provided by service providers must serve as essential documents to ensure that borrowers can repay the investments made

Table 5. Acceptance at the borrower (farmer) level based on the “behavioral science of Fintech” concept

Element	Statement	
Habitual complacency	Awareness	<ul style="list-style-type: none"> <li>Representatives of chili, mango, and rock melon farmers are aware of fintech, compare to paddy farmers.</li> </ul>
	Recognition of need	<ul style="list-style-type: none"> <li>Rock melon and chili farmers are more knowledgeable about fintech than paddy and mango farmers.</li> <li>All four farmers felt that the need for fintech loans is not critical. Mango farmers do not require the fintech loan concept due to the long-term nature of their crop. Chili and melon farmers can still obtain initial funding for operational costs, while rice farmers prefer loans through fertiliser and pesticide suppliers (buy now, pay later).</li> </ul>
	Intention	<ul style="list-style-type: none"> <li>Mango farmers require more initial capital than operational capital, while rock melon, chili, and paddy farmers require operational capital.</li> </ul>
	Behaviour/action	<ul style="list-style-type: none"> <li>Rock melon and chili farmers have sought information on alternative online loans but did not proceed due to unclear methods and implementation.</li> </ul>
Lack of trust	Privacy	<ul style="list-style-type: none"> <li>All farmers remain sceptical of fintech loans and require further explanation.</li> </ul>
	Security	<ul style="list-style-type: none"> <li>Uncertain about the guarantee of the invested funds.</li> <li>Reluctant to be tied to investor demands that prioritise profits, as the agricultural sector does not guarantee consistent yields.</li> </ul>
	Uncertainty	<ul style="list-style-type: none"> <li>Confident in the existing banking system but not in the proposed fintech investment concept.</li> </ul>
	Misconceptions	<ul style="list-style-type: none"> <li>Unable to visualise how the loan process would work, the implementation process, and the parties responsible for all operations. They still perceive the system as similar to conventional bank loans that require physical visits to banks or offices, rather than an entirely online process.</li> </ul>

by the investors. Service providers play a critical role in ensuring that the relationship between borrowers and investors reaches a mutual agreement, benefiting both parties. If these issues are adequately addressed, a new P2P lending ecosystem could be established as suggested in *Figure 8* below.

This proposed new lending system offers investors’ portfolios in three forms: 1) financial, 2) agricultural inputs, and 3) agricultural technology, provided by service providers. The financial portfolio

offers cash to the borrower, while the input and technology portfolios offer services to borrowers. These service providers must collaborate with input and technology suppliers to diversify the available loan options. This collaboration would indirectly help agricultural input and technology providers participate in the proposed P2P lending ecosystem. The partnership between service providers and input suppliers introduces a third party into the system, alongside investors who finance the loans,

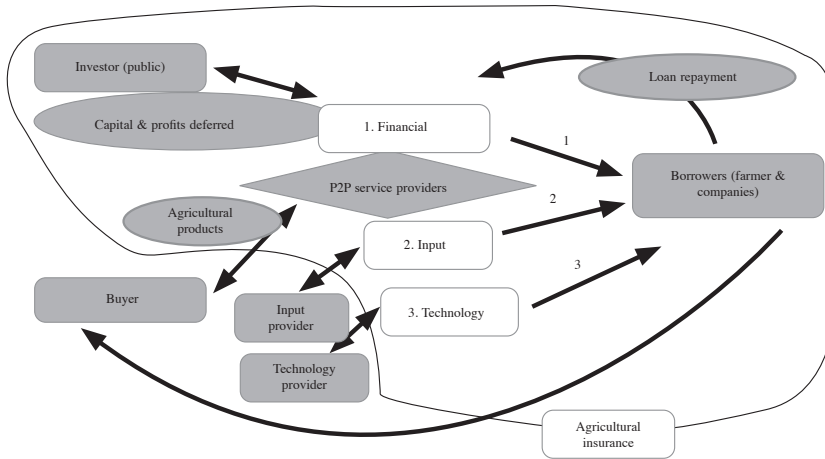


Figure 8. Proposed P2P lending system in Malaysia

though borrowers or farmers would not receive cash directly. Instead, they would receive the necessary agricultural inputs or technology to ensure their farms' operations.

Investors would receive their invested capital back with an agreed-upon profit, but this profit would not be paid monthly. Instead, it would be deferred according to the lifecycle of the invested commodity. This deferred profit allows borrowers to manage their farms until they achieve the final harvest, after which the profits are shared between the farmers and investors. Borrowers would repay the service providers after selling their final products, either directly to buyers or by selling the produce back to the service providers. The proceeds from these sales would be used to pay the investors' profits and the farmers' agricultural income.

This ecosystem, involving service providers, investors, and farmers, would be supported by agricultural insurance to provide compensation for losses if crops or agricultural activities fail due to disease,

weather changes, or disasters. Establishing an agricultural insurance package alongside this P2P lending ecosystem would increase the confidence of all stakeholders and facilitate lending through Fintech approaches. However, the government must still play a role as a regulator to ensure that the system is not misused by online criminals, as it operates entirely online and is intermediated only by service providers. Joint oversight by responsible ministries such as the Malaysian Communications and Multimedia Commission (MCMC), the Securities Commission, and Bank Negara is essential and should be enforced by the government.

However, the proposal to establish a new P2P lending system must first overcome several problems (see Table 6 below) before it can be implemented.

Table 6. Issue and recommendation before implementation on the new P2P lending system

Group	Issues	Recommendation
Government	Policy and legislation: Open P2P policy allowing companies and individuals to participate	Develop a mechanism to encourage farmers to participate collectively, either through empowerment of associations or cooperatives, to ensure that these alternative loans reach the farmers
Investors	Documentation system: Incomplete and non-transparent documentation for investors in the agricultural sector. Readiness: Willing to accept deferred investment returns between 6 – 12 months	Investors are interested in participating in agricultural sector investments, but they require clear investment profiles and agricultural insurance
Service providers	Online platform: Capable of providing an online platform tailored to investor needs Investor profit: Prioritize investor profits	Emphasise the importance of deferred returns to investors
Borrowers (farmers)	Information gap: Lack of information on alternative (fintech) loans for farmers to obtain operating capital. Interest: Farmers are interested in these alternative loans but are unsure of the appropriate procedures	Increase awareness among farmers about the available alternative loan facilities to help them manage finances, particularly operating costs

## Conclusion

The status of Fintech in Malaysia, especially in the agricultural sector through Peer-to-Peer (P2P) lending is still in the early stages of acceptance and adoption among farmers. While this technology presents a potentially more flexible financing alternative challenges exist due to a lack of knowledge and trust among farmers in Fintech systems. Many farmers prefer conventional methods that they find more familiar and reliable. For Fintech to gain traction in the agricultural sector, government support in the form of policy development and efforts to increase awareness among farmers will be essential.

Optimistically, Fintech offers an opportunity to provide farmers with an alternative platform to secure loans for operational costs, which are currently difficult to obtain through the existing financial system due to the stringent criteria imposed by national banks. However, further research is required to assess the

effectiveness and impact of the proposed facilitation of Fintech implementation. This includes evaluating whether the individual needs of borrowers can be adequately met in ways that support farmers in their agricultural activities while taking into account policies, legislation and procedural requirements.

Overall, Fintech could serve as a valuable alternative for Malaysian farmers, particularly in providing access to capital without the stringent conditions often attached to traditional bank loans. However, for Fintech to be an effective and truly beneficial financing option for farmers, it must offer assurances, such as agricultural insurance, to mitigate the risks faced by investors. Such measures would help build investor confidence and encourage greater engagement with Fintech as a sustainable financing solution for the agricultural sector.

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## Abstrak

Sektor pertanian di Malaysia menghadapi cabaran dalam mendapatkan pembiayaan, sebahagian besarnya disebabkan oleh syarat ketat dalam sistem perbankan konvensional. Kajian ini mencadangkan sistem model pinjaman Fintech Peer-to-Peer (P2P) sebagai penyelesaian alternatif untuk merapatkan jurang pinjaman ini. Cadangan mengatasi jurang ini dengan menawarkan tiga jenis portfolio pelaburan; modal kewangan, input pertanian dan teknologi pertanian. Penglibatan penyedia perkhidmatan adalah penting, bertindak sebagai perantara untuk memastikan kelancaran transaksi antara pelabur dan petani. Selain itu, model ini menekankan kepentingan pulangan tertunda, selaras dengan kitaran pertanian, dan menggabungkan insurans pertanian untuk melindungi daripada potensi risiko seperti kegagalan tanaman atau bencana alam. Peranan kerajaan dipertanggungjawabkan pihak yang mewujudkan dasar yang menyokong dan menyediakan pengawasan kawal selia untuk melindungi sistem daripada penyalahgunaan. Kajian itu juga menekankan keperluan untuk meningkatkan pendidikan petani mengenai faedah dan manfaat pembiayaan alternatif seperti pinjaman P2P Fintech ini. Model yang dicadangkan menawarkan laluan alternatif yang menjanjikan dengan menggabungkan kerjasama untuk pembiayaan kewangan, kejayaannya masih bergantung pada kerjasama yang teguh antara agensi kerajaan, penyedia perkhidmatan dan komuniti petani. Kajian lanjut diperlukan untuk mengoptimumkan model dan memastikan pelaksanaannya berkesan dalam landskap pertanian Malaysia.

