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Designing A Fintech Crowdfunding Business Model to Support the Sustainability of Small-Scale Coffee Farmers in Dairi Regency

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ABSTRACT

Small-scale coffee farmers in Dairi Regency, Indonesia, face significant challenges in accessing capital, primarily due to low financial literacy, coffee price volatility, and limited assets for collateral. These issues hinder farmers from adequately maintaining their coffee plants, resulting in constrained production and declining crop productivity. Financial technology (fintech) crowdfundingcrowdfunding offers a potential solution to improve access to financing and enhance the sustainability of farming enterprises. This study aims to design a fintech crowdfundingfintech crowdfundingcrowdfunding business model that addresses the needs of small-scale coffee farmers in Dairi Regency, facilitating easier access to capital, enhancing supply chain transparency, and promoting the sustainability of their businesses. The study employs a qualitative approach, incorporating in-depth interviews with coffee farmers, lending service providers, and investors, alongside secondary data analysis. The Business Model Canvas (BMC) is applied to map customer segments and revenue streams, while the Value Design Model (VDM) is utilized to create value among stakeholders. This research is expected to produce an effective crowdfundingcrowdfunding business model tailored to support coffee farmers while inspiring investors to develop fintech crowdfundingfintech crowdfundingcrowdfunding solutions that align with the unique characteristics of small-scale coffee farmers in Indonesia.

Keywords: *Fintech crowdfunding, Business Model, Small-Scale Coffee Farmers, Business model canvas, Dairi Regency*

INTRODUCTION

Small-scale coffee farmers in Dairi Regency, North Sumatra, face various challenges in developing their farming businesses (Nocera & Gardoni, 2018). One of the main obstacles is the limited access to financing that is urgently needed to improve productivity and crop quality. Running a coffee farming business requires a lot of capital for the purchase of superior seeds, fertilizers, pesticides, equipment, and labor (Marbun & Napitupulu, 2016).

Coffee farmers' income is often not proportional to the cost of production, mainly due to fluctuations in coffee prices in the global market as well as disturbances such as bad weather or pest attacks (Gilbert, 2006). Dependence on the harvest season that only occurs once or twice a year makes their income unstable (Rahman & Akhtar, 2012). Meanwhile, capital needs are continuous throughout the year, so many farmers find it difficult to meet their daily operational needs and long-term investments.

The biggest barrier to accessing financing is the lack of collateral or guarantees that banks and formal financial institutions can accept. Most farmers have limited land and often do not have official certificates, so they do not qualify as credit guarantees (Beck, Demirgüç-Kunt, & Martinez Peria, 2008). Banks tend to consider them as high-risk customers due to limited assets and unstable income.

In addition, low financial and digital literacy among small-scale coffee farmers is an additional obstacle. Many of them are not familiar with complex banking procedures, such as submitting legal documents and financial statements (Tambunan, 2019). This complicated and bureaucratic process often makes them reluctant to apply for loans, even though they are in dire need of capital (World Bank, 2008).

In the midst of these limitations, financial technology (*fintech*) and *crowdfunding* have emerged as promising alternative solutions. *Crowdfunding* is a method of raising funds from many people through online platforms to fund a specific project or venture (Mollick, 2014). For small-scale coffee farmers, *fintech*

crowdfunding can be an outlet to get financing without the need to provide collateral that is difficult for them to meet (Astari, Charina, Noor, & Mukti, 2019).

How does this *crowdfunding* work? *Crowdfunding* is a funding method that is different from traditional financing systems such as banks. Banks typically require collateral as security, while *crowdfunding* places more emphasis on the project's potential and the level of trust given by the investor community. In practice, farmers can create funding proposals and upload them to *fintech crowdfunding* platforms. The project proposal will be available to potential investors who can then assess the business plan, risks, and potential profits of the proposed project (Belleflamme, Lambert, & Schwienbacher, 2014). If investors are interested, they can choose to provide funds according to their abilities and desires.

Crowdfunding offers several advantages that can meet the needs of farmers, including: first, eliminating the need for collateral. Because funding comes from a large number of investors who make small contributions, financing risks become more diffuse and do not require physical collateral, such as land certificates (Agrawal, Catalini, & Goldfarb, 2014). This is especially advantageous for farmers who do not have valuable assets to use as collateral. Second, *crowdfunding* offers a simpler and faster application process compared to traditional financing through banks. *Crowdfunding* platforms generally have easier procedures and lighter administrative requirements, which reduces the bureaucratic burden for farmers (Bruton et al., 2015).

In addition, *crowdfunding* gives farmers access to a wider network of investors. Through this platform, farmers can connect with investors who have an interest in the agricultural sector or who are interested in a social mission to support smallholder businesses, thereby increasing their funding opportunities (Belleflamme et al., 2014). Fourth, *crowdfunding* offers greater transparency and trust. With digital technology, all information related to projects and the use of funds can be monitored in real-time by investors, which increases the level of transparency and builds a relationship of mutual trust between farmers and investors (Kamilaris, Fonts, & Prenafeta-Boldú, 2019). Finally, *crowdfunding* can also empower communities. This funding enables local and global communities to contribute to the well-being of farmers, while creating stronger social bonds (Lehner, 2013).

To ensure *fintech crowdfunding* is effective, a solid business model is needed and in accordance with the needs of farmers. The *Business Model Canvas* (*BMC*) and the *Value Design Model* (*VDM*) are the frameworks that can be used to design such business models. The *Business Model Canvas* helps to comprehensively visualize and assess the business model through nine key elements, such as customer segments, value propositions, and revenue streams (Osterwalder & Pigneur, 2010).

The *Business Model Canvas* (*BMC*) is a framework used to design, describe, and analyze business models thoroughly. This concept was first introduced by Osterwalder and Pigneur (2010), who identified nine key elements that make up an effective and efficient business model. *BMC* aims to provide a clear visual picture of how an organization creates, delivers, and captures value. By using *BMC*, entrepreneurs and business managers can see their entire business model in one structured page, facilitating strategic planning and decision-making.

The first element in *BMC* is the Customer Segment, which includes the group of customers served by the business. This segment can be made up of individuals, groups, or even organizations that have similar needs and characteristics. A deep understanding of customer segments is essential, as it determines how the product or service will be designed and tailored to meet the specific needs of each group. The second element is the Value Proposition, which describes the unique value offered to customers. This value proposition is the main reason why customers choose a particular product or service over a competitor's product. This includes solutions to customer problems, product advantages, or benefits that cannot be found elsewhere (Osterwalder & Pigneur, 2010).

Furthermore, the Distribution Channel is the way a product or service is delivered to customers. This includes the distribution channels that companies use to reach customers, either directly through physical stores, digital platforms, or through distribution partners. Efficient and timely distribution channels are essential to ensure products reach customers in the desired conditions and according to their expectations. Relationships with Customers describe the type of relationship built between a company and customers. This can be personal, automated, or community-based relationships. The goal is to improve the customer experience as well as build long-term loyalty. This type of relationship is highly dependent on the characteristics of the customer as well as the strategic objectives of the company (Osterwalder & Pigneur, 2010).

Revenue Streams describe how a company makes money from the customers it serves. Revenue stream models can be diverse, ranging from direct sales, subscription fees, advertising, to license-based models. Understanding the right revenue streams is essential to ensure the financial sustainability of the business and

enable the company to adapt to market changes. Primary Resources refer to critical assets that are required to run a business model effectively. These resources can be physical, intellectual, human, or financial assets that support business operations and development. Without adequate resources, a business model is difficult to grow and compete in a competitive market (Osterwalder & Pigneur, 2010).

Key Activities include the essential activities that must be carried out to create and deliver a value proposition to customers. This activity can be in the form of production, marketing, product development, or other activities that are vital for the continuity of business operations. A Key Partnership is an element that describes a partner or supplier who has a critical role in supporting the operation and continuity of the business model. These partnerships can include strategic alliances, raw material procurement, or cooperation in product distribution. Effective partnerships can help companies reduce risk and improve operational efficiency (Osterwalder & Pigneur, 2010).

Finally, the Cost Structure covers various costs that arise in running a business model, both fixed and variable costs. This involves all the expenses necessary to create and deliver the value proposition to customers as well as to manage various aspects of the business, such as production, marketing, and resource management. Having an efficient and well-managed cost structure is essential to ensure the long-term viability and profitability of the business (Osterwalder & Pigneur, 2010).

The *Value Design Model* (*VDM*) expands and complements the *Business Model Canvas* approach by providing a deeper focus on value creation for all stakeholders in a business model. While *BMC* provides an overview of the elements that make up a business structure, *VDM* places more emphasis on how value is created, exchanged, and shared among different parties in the business ecosystem. The main goal of *VDM* is to ensure that value is not only created, but also distributed equitably to all parties involved, thereby supporting sustainability and balance in business relationships (Westerlund et al., 2014).

According to Westerlund, Leminen, and Rajahonka (2014), *VDM* consists of four main components that are interrelated and play an important role in creating value. The first component is Value Drivers, which include the factors that drive value creation in a business. Value Drivers can be product innovation, operational efficiency, strong customer relationships, or strategic partnerships that improve the flow of products and information in the business ecosystem. By understanding and identifying Value Drivers, companies can ensure their competitiveness and survival in an increasingly competitive market.

The second component is Value Nodes, which describe the parties involved in the business ecosystem. This involves the company itself as well as customers, suppliers, partners, regulators, and even competitors who play a role in creating value. Each party in this ecosystem has a unique contribution and interacts with each other to generate shared value. Value Nodes mapping helps companies understand the dynamics of relationships between stakeholders, which is critical to designing effective and sustainable business strategies (Westerlund et al., 2014).

The third component, Value Extracts, refers to the value obtained by each stakeholder from the business ecosystem. Each party involved benefits according to their roles and contributions. For example, a company earns revenue or profits, customers get a product or service that meets their needs, while business partners earn contributions or resources that support their operational continuity. Understanding how value is extracted by different parties is important to ensure that the distribution of benefits occurs fairly and equitably, which in turn supports long-term, mutually beneficial relationships (Westerlund et al., 2014).

Finally, Value Exchange describes the process of exchanging value between parties in a business ecosystem. This exchange can be in the form of financial transactions, information exchange, or other forms of interaction that allow for the creation of mutual benefits. It is important to ensure that these value exchange mechanisms run fairly and transparently, as the success of the business model depends heavily on how value is exchanged efficiently and balanced. By designing effective value exchanges, companies can create stronger relationships with stakeholders and strengthen their competitive position in the industry (Westerlund et al., 2014).

Overall, the *Value Design Model* provides a more structured framework for understanding and managing value creation in complex business ecosystems. By mapping out Value Drivers, Value Nodes, Value Extracts, and Value Exchange, companies can design more inclusive and sustainable business models, ensuring that every stakeholder gets balanced and sustainable benefits (Westerlund et al., 2014).

In the context of small-scale coffee farmers, *BMC* can help design a *fintech crowdfunding* business model that focuses on their needs. For example, the value proposition can be focused on easy access to financing and improving farmers' welfare. The customer segment includes coffee farmers and investors interested in the

agricultural and social sectors. The *Value Design Model* complements *BMC* with an emphasis on value creation for all stakeholders involved. *VDM* helps identify value driving factors, the parties involved in the business ecosystem, the value obtained by each stakeholder, and the exchange of value between parties (Fielt, 2013).

The results of previous research support the application of *BMC* and *VDM* in the context of *fintech crowdfunding*. Aqmalia et al. (2024) highlight that *BMCs* can map key elements such as value proposition and customer relationships, while *VDMs* help ensure that all parties in the business ecosystem, including farmers and investors, derive balanced benefits. Similar research by Rahadian et al. (2024) on the Cermati.com platform shows that the integration of *BMC* and *VDM* enables adaptive business model design and improves collaboration between stakeholders. Nicoletti (2017) also suggested that *BMC* helps *crowdfunding* platforms design relevant risk management strategies in the agricultural sector. This research shows that the combination of *BMC* and *VDM* can increase transparency, trust, and sustainability of the business ecosystem.

Several successful examples in various countries show that *fintech crowdfunding* can be a real solution for small-scale farmers. For example, in China, peer-to-peer (P2P) lending platforms have facilitated access to capital for farmers without having to go through traditional banks (Liu, Zhang, Zhang, & Xiao, 2021). Meanwhile, in Nigeria, the FarmCrowdy platform has succeeded in improving the productivity and well-being of farmers by connecting them directly with investors (Bruton et al., 2015).

FarmCrowdy, founded in 2016 in Nigeria, connects smallholders with individual investors interested in funding agricultural projects. Through this business model, farmers obtain capital to purchase agricultural inputs, while investors get a share of the harvest profits (Atuahene-Gima & Amuzu, 2019). As of 2020, FarmCrowdy has empowered over 25,000 farmers and attracted more than 50,000 investors, thereby improving agricultural productivity and farmer welfare in Nigeria (Atuahene-Gima & Amuzu, 2019).

In Indonesia, despite focusing on the fisheries sector, eFishery is a successful example of *fintech crowdfunding*. The platform provides financing solutions for fish farmers through a peer-to-peer lending model. By leveraging IoT technology and data analytics, eFishery helps farmers improve production efficiency while gaining access to financing from individual investors (Suryono et al., 2023). The success of eFishery shows the potential of *fintech crowdfunding* in empowering the agriculture and fisheries sector in Indonesia.

In addition, global *crowdfunding* platforms such as Kickstarter have supported various agricultural projects in the United States. For example, Stone Acres Farm successfully raised funds to develop organic farming and community education programs. Support from the global community allows farmers to access capital without going through traditional financial institutions (Belleflamme, Omrani, & Peitz, 2015).

While *fintech crowdfunding* offers many advantages, there are risks such as data security and potential defaults. The use of blockchain technology can increase the transparency and security of transactions, providing more confidence for investors (Kamilaris et al., 2019). In addition, low financial and digital literacy among farmers needs to be addressed through education and mentoring so that they can make optimal use of this platform. The role of government and regulations is also very important in supporting the development of *fintech crowdfunding*. The Financial Services Authority (*OJK*) has issued *POJK* No. 77/POJK.01/2016 which regulates information technology-based money lending services (OJK, 2016). However, there are still challenges in its implementation, especially related to consumer protection and supervision of *fintech* platforms that have not been officially registered (Aqmalia, Rahadian, & Krisnawati, 2024).

The success of *fintech crowdfunding* in various countries shows its potential application for small-scale coffee farmers in Dairi Regency. By designing appropriate business models using *BMC* and *VDM*, as well as paying attention to local characteristics, *fintech crowdfunding* can be an effective solution to overcome the limitations of access to financing.

This research aims to design a *fintech crowdfunding* business model that suits the needs of small-scale coffee farmers in Dairi Regency. By using the *Business Model Canvas* and *Value Design Model* approaches, it is hoped that a holistic and stakeholder-oriented solution can be found. This study aims to: Analyze the business characteristics and challenges faced by small-scale coffee farmers in Dairi Regency in accessing financing. This analysis is important to understand the factors that affect limited access to financing, including socio-economic conditions, financial literacy, and other structural barriers. Identify the capital needs and financing preferences of small-scale coffee farmers in Dairi Regency. This identification aims to determine the type and scale of financing needed, as well as farmers' preferences for alternative sources and financing mechanisms. Designing a *fintech crowdfunding* business model that suits the needs of small-scale coffee farmers using the *Business Model Canvas* and the *Value Design Model*. This design will result in an adaptive and innovative business model, utilizing

the *Business Model Canvas* and *Value Design Model* approaches to create effective and sustainable financing solutions.

This research is expected to make an important contribution to the development of literature in the field of *fintech* and business models applied in the agricultural sector, especially in *crowdfunding*-based financing schemes. Financial technology (*fintech*) in the form of *crowdfunding* is an innovative solution that has not been studied in depth in the agricultural sector, especially in Indonesia (Astari, Charina, Noor, & Mukti, 2019). Thus, this study is expected to bring new insights on how the implementation of *crowdfunding* can help address the challenges faced by small-scale coffee farmers, including limited access to capital and lack of transparency in the coffee supply chain (Beck et al., 2008). This research is also expected to be an important reference for future studies focusing on the impact and effectiveness of *fintech* in supporting the agricultural sector. In addition, this research opens up opportunities for the development of more innovative and adaptive business models in the agricultural sector, which is known to face various structural challenges (FAO, 2017). Practically, this research is expected to open access to alternative financing sources that are more easily accessible through *fintech crowdfunding* platforms. With more flexible financing solutions, small-scale coffee farmers can obtain capital to increase their farm productivity without having to rely on traditional financial institutions that are difficult to access (Bruton et al., 2015). In addition, this research also plays a role in improving farmers' financial and digital literacy, enabling them to better understand the use of technology in managing their agricultural business (World Bank, 2008).

For investors, this research presents investment opportunities that not only provide financial benefits, but also positive social impacts. By investing through *fintech crowdfunding* platforms, investors can support local economic growth and help farmers improve their well-being, while earning competitive profits (Liu, Zhang, Zhang, & Xiao, 2021).

Finally, this research is beneficial for loan service providers in general and *fintech* service providers in particular, who can use the results of this research to develop products that are more suited to the needs of farmers and the agricultural market. By understanding the specific needs of small-scale coffee farmers, loan service providers and *fintechs* can create financial products that are more targeted and able to support economic sustainability in the agricultural sector (Cillo et al., 2019).

METHOD

Research methods are scientific methods used to obtain data with specific purposes and uses. In the context of this study, the approach used is a *descriptive qualitative* approach that aims to describe in depth the challenges faced by small-scale coffee farmers in Dairi Regency in accessing financing and to design a *fintech crowdfunding* business model that suits their needs. The qualitative approach provides space for researchers to explore phenomena holistically and deeply, with an emphasis on the subjective understanding possessed by the participants (Creswell, 2014). Thus, this approach is very appropriate to be used to explore farmers' experiences in dealing with financing obstacles and to see the potential solutions that can be presented by *fintech crowdfunding*.

This research can be categorized as *descriptive research* because it aims to describe the phenomena that occur in the field. Descriptive research focuses on understanding and elaborating in detail the problems faced by coffee farmers, without conducting hypothesis testing. According to Babbie (2010), descriptive research is used to describe characteristics or phenomena in the field. In this case, this study aims to provide a comprehensive overview of the conditions faced by coffee farmers in accessing financing and financing solutions based on *fintech crowdfunding*.

This research adopts the *interpretivism paradigm*, which focuses on the subjective understanding of individuals regarding their social world. This paradigm is very relevant because this research aims to explore the views of coffee farmers, *fintech* providers, and investors related to business financing and sustainability. Schwandt (2014) states that the *interpretivism paradigm* emphasizes understanding the meanings constructed by individuals in their social situations, which in this case is the coffee farmer's experience related to access to financing.

In particular, this research is included in *exploratory research* because it aims to explore a phenomenon that has not been widely researched, namely the application of the *fintech crowdfunding* business model in the coffee farming sector. Flick (2018) explains that *exploratory research* is used when little information is available about a topic and aims to dig deeper into relevant aspects. This study seeks to identify the challenges faced by coffee farmers in accessing financing and how *fintech crowdfunding* can be an effective alternative.

The approach used in this study is *inductive*, where researchers collect data from the field to build relevant theories or models. Bryman (2016) explains that the *inductive approach* involves collecting data that will be analyzed and used to generate new theories or understandings that have not been previously identified. In this case, the data collected from interviews, observations, and documentation will be used to design the right *fintech crowdfunding* business model for small-scale coffee farmers.

The study was conducted in a *non-contrived setting*, which means that the data was collected in a natural environment without any manipulation or experimentation conducted by the researcher. Yin (2018) stated that research in a *non-contrived setting* allows researchers to obtain more authentic data and reflect the real conditions faced by the participants. Therefore, this research was conducted directly in the field, where coffee farmers and other stakeholders interact in their daily contexts.

In terms of research time, this study uses a *cross-sectional approach*, i.e., data is collected at a specific point in time. Creswell (2014) stated that the *cross-sectional approach* is suitable for use when researchers want to describe phenomena that occur at a certain time without involving long-term analysis. In this case, this study illustrates the financing challenges faced by coffee farmers at the time the research was conducted.

The type of data used in this study is *primary data*, which is obtained directly from informants through in-depth interviews, observations, and documentation. Sugiyono (2017) explained that *primary data* is data collected directly from the source and is more relevant and authentic to describe the phenomenon being studied. Therefore, the data collected from interviews and observations of coffee farmers will provide more in-depth information about the problems they face in accessing financing.

The units of analysis in this study are individuals, especially small-scale coffee farmers, *fintech crowdfunding* providers, and investors involved in the coffee farming sector in Dairi Regency. Babbie (2010) posits that the *unit of analysis* refers to the entity that is the focus of the research, and in this case, the individual who participates in the coffee financing ecosystem in the area.

In terms of the tools used, this study relies on in-depth interviews and observations as the main instruments for collecting data. In addition, NVivo will be used to analyze qualitative data systematically. Saldana (2016) stated that NVivo is a very effective tool for managing and analyzing qualitative data, such as interview transcripts and observation notes.

Using this approach, this research is expected to make a significant contribution to the development of *fintech crowdfunding* theory in the agricultural sector, as well as provide practical insights to design more effective and sustainable business models for small-scale coffee farmers in Dairi Regency.

RESULTS AND DISCUSSION

A. Designing a Fintech Crowdfunding Business Model: Business Model Canvas

The development of financial technology (fintech) opens up great opportunities in facilitating financing in the agricultural sector which has been considered high-risk and less in demand by conventional financial institutions. The fintech crowdfunding model is an alternative solution to bridge farmers' needs for capital and market access with investors who want to make a real contribution to the coffee commodity agriculture sector. To design and manage the right and sustainable business model, the Business Model Canvas (BMC) framework is used which maps nine important elements in a business model that interact with each other and is the basis for the development of fintech crowdfunding platforms in the agricultural sector as follows:

1. Key Partnerships
2. Key Activities
3. Value Propositions
4. Customer Relationships
5. Customer Segments
6. Key Resources
7. Channels
8. Cost Structure
9. Revenue Streams

The BMC components were identified from the results of field observations, in-depth interviews, and FGD (Focus Group Discussion) with small-scale coffee farmers and other stakeholders, then the researcher conducted a qualitative thematic analysis process using NVivo 12 software. In this stage, the researcher enters all interview transcripts and field data into NVivo, then encodes the data according to the nine components of BMC above. Each

relevant quote or narrative is put into their respective categories (nodes), such as "Value Proposition", "Revenue Streams", or "Channels", and others.

Next, the researchers used the Hierarchy Chart feature in NVivo 12 to visualize the frequency of theme occurrences in each component. The Hierarchy Chart helps show how much influence or weight of perception and importance given by respondents to each component of BMC.

Based on the results of the Hierarchy Chart visualization from data analysis using NVivo 12, it can be seen that the Key Partnerships, Customer Relationships, and Channels components have the largest proportion of sizes compared to other components in the Business Model Canvas (BMC). This suggests that these factors are most often mentioned and considered most important by informants in the development of community-based and digital financing models for small-scale coffee farmers. The Customer Segment, Cost Structure, and Value Proposition components occupy a middle position, which indicates that all three also have a significant role in business strategy, although not as strong as the previous three components. Meanwhile, Key Activities, Key Resources, and Revenue Streams were relatively smaller in size, indicating that the frequency and depth of discussion of these aspects were lower in interviews and FGDs. Thus, this analysis indicates that the success of inclusive financing models relies heavily on strategic partnerships, customer relationships, and the right distribution or communication channels, which need to be the primary focus in program design and implementation.

Based on the above explanation, the researcher then described the results of the data into the form of a Project Map using NVivo 12. This visualization aims to show the relationships between components in the Business Model Canvas (BMC) as well as their relationship with the main findings of interviews and focus group discussions (FGDs). Through the Project Map, it can be seen how components such as Key Partnerships, Customer Relationships, and Channels have a strong connection with the community engagement strategy and strengthening the distribution network in the development of the financing model. Meanwhile, the Value Proposition and Customer Segment are closely related to the preferences and needs of small-scale coffee farmers as the main target. Components such as Cost Structure and Revenue Streams are directly linked to the cost efficiency and financial sustainability of the business model. Meanwhile, Key Activities and Key Resources play an important role in supporting operational sustainability.

The results of the Pearson correlation coefficient test are carried out to determine the strength of the relationship between coding results. Furthermore, the reliability test was carried out with the Inter-Rater Reliability method of Cohen's Kappa. This is used to determine the consistency of coding results so that it requires the presence of more than one coder or rater.

Table 1. Correlation and Inter-Rater Reliability Test

Coding	**Testing**	**Score**	**Information**
Quality of Education	*Pearson Correlation Coefficient*	0,214	Low and meaningful correlation
	Cohen's Kappa *Coefficient*	0,718	*Excellent Agreement*

Based on the results of NVivo 12 processing, the average Pearson correlation coefficient test results were obtained of 0.214, which means that the codings have a low and significant correlation. The reliability test in qualitative research is the Cohen's Kappa coefficient. The result of the average Cohen's Kappa coefficient was obtained as 0.718 which is included in the category of excellent agreement or very high realism.

Key Partners in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

The design of the fintech crowdfunding business model aims to support the sustainability of small-scale coffee farmers in Dairi Regency. The Key Partners element is an important part of the structure of the Business Model Canvas (BMC). The partnerships that are built must be collaborative, adaptive, and based on the real needs of farmers in the field. The first party that plays an important role is the investor community and the crowdfunding platform itself, which serves as a link between farmers as beneficiaries and investors as fund providers. The platform provides a secure, transparent, and trustworthy technology system in managing the flow of information and funds between the two parties. This partnership is strengthened by the existence of a team of investment feasibility analysts whose function is to select farmers' business proposals, assess risks, and provide recommendations for sustainable investment opportunities with high social impact.

The local government is also a strategic partner that supports the legality and regulation of fintech operations, as well as opening up synergy opportunities with various farmer empowerment programs, cooperatives, and strengthening village institutions. Field Agricultural Extension Workers (PPL) become field

partners who act as facilitators, technical assistants, and reporters of farmers' progress, as well as helping farmers develop business plans that are worthy of financing by investors. In the social sphere of the farmer community, farmer groups and farmer cooperatives are key partners that provide a collective structure to manage funds, set planting schedules, and strengthen farmers' bargaining positions in the market. BUMDes (Village-Owned Enterprises) also act as a bridge between the digital system and local operations, especially in logistics management, distribution of production facilities, and supervision of the use of funds.

Support from formal financial institutions such as banks is still needed to support the payment system, open escrow accounts, and bridge farmers to access other financial services such as insurance or People's Business Loans (KUR) based on the performance of crowdfunding results. In addition, fertilizer shops and agricultural production facilities providers are important partners in distributing investment funds to be used productively and on target through a cashless payment system supervised by the platform. On the downstream side, coffee agents or collectors become market partners who act as buyers of crops and support the off-taker agreement model that ensures a more stable marketing of farmers' agricultural products. Although often viewed negatively, middlemen who have long been part of the supply chain of coffee farmers in Dairi also need to be involved in the transformation process into transparent and systematic distribution partners or alternative buyers.

In addition, the farmer's family and close friends, while their role is informal, remain an important part of the supporting ecosystem. They often help in land management, recording, and training on the use of technology introduced by the platform. By involving these various parties synergistically, the fintech crowdfunding business model is designed not only to provide alternative access to funding for coffee farmers, but also to create an inclusive, resilient, and sustainable agricultural system. All of these partners support the achievement of the main goal of this business model, which is to increase the productivity, welfare, and sustainability of small-scale coffee farmers in Dairi Regency through a community-based digital approach and mutual cooperation.

Figure 1. Key Partners in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency. Source: Researcher-processed data (2025)

Key Activities in the Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

In designing an effective and sustainable crowdfunding fintech business model for small-scale coffee farmers in Dairi Regency, Key Activities elements have a strategic role in ensuring that the entire ecosystem runs efficiently, transparently, and has a direct impact on improving farmers' welfare. The first and most fundamental main activity is the verification and audit process of farmers, which includes an assessment of identity, cultivation history, land ownership, and commitment to sustainability. This verification is the foundation for creating investor confidence in the project they will fund. In addition, the development of traceability systems is essential to guarantee that crop yields, warehouse information, and the movement of investor funds can be accurately tracked. This system will help create transparency in the coffee supply chain, while ensuring that the harvest does indeed come from farmers involved in crowdfunding programs.

Another activity is the preparation of periodic reports by farmers, which will be a means of monitoring the performance of agricultural projects, as well as a formal communication tool between farmers and investors. This

report will also be used in the harvest potential assessment process, which takes into account not only quantitative but also qualitative aspects such as coffee bean quality, post-harvest techniques, and plant-harvest timeliness. In addition, education activities and direct assistance to farmers are a priority in this model, considering that most coffee farmers in Dairi still need to strengthen their capacity in managing data- and technology-based farming businesses.

As part of the social function of the platform, periodic evaluations of the assistance provided and the delivery of market price information are also carried out, which helps farmers in making better economic decisions. Other key activities include providing access to capital, including a buy-back guarantee, which allows farmers to focus on production without having to worry about marketing. This activity is also directly connected to the platform's role as a liaison between farmers and investors through an inclusive and user-friendly digital system. Intensive interaction between stakeholders, including farmers, investors, extension workers, and buyers, is needed to build mutual trust, accelerate responses to problems, and strengthen socio-economic networks.

In addition, this model also develops a guarantee or collateral system based on productive assets, which provides additional security to investors and encourages farmers to maintain their business performance. No less important, all activities in this business model must comply with ethical standards and agricultural regulations, both in terms of farmer protection, product safety, and compliance with applicable laws. Thus, Key Activities in this model are designed not only to manage the crowdfunding process technically, but also to ensure that the entire process takes place in an inclusive, responsible manner, and is able to build the sustainability of long-term coffee farming in Dairi Regency.

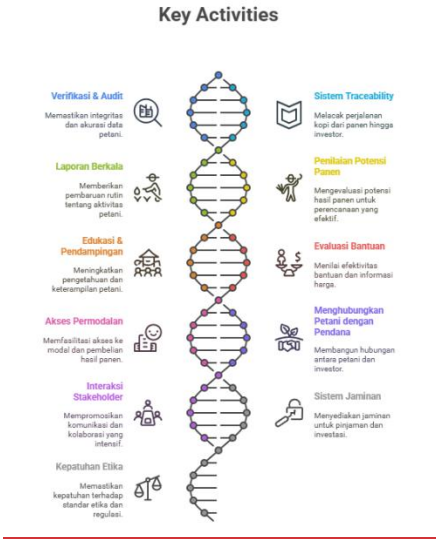

Figure 2. Key Activities in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency. Source: Researcher-processed data (2025)

Value Propositions in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

The crowdfunding fintech business model is designed as an effort to support the sustainability of small-scale coffee farmers in Dairi Regency. One of them offers various value propositions that focus on empowering farmers as a whole, from capital aspects to market access. One of the main values offered is the ease of access to capital, which has been the main obstacle for smallholders to increase the scale of production and the quality of cultivation. Through this fintech system, farmers can obtain funds faster and easier than conventional banking mechanisms, which are often difficult due to collateral demands and complicated administrative procedures.

Further, the platform guarantees a stable return on capital and coffee supply for investors and buyers, creating a mutually beneficial ecosystem between funders and farmers. The certainty of loan disbursement is a competitive advantage of this model because the entire process is supported by technology and structured monitoring, thus being able to accelerate financing decision-making. Low interest rates and low terms are also the main attraction for farmers, because they are designed according to the economic capabilities of small farmers, so that they do not add to the financial burden that can lead to default.

On the other hand, this system provides access to better markets and prices through cooperation with coffee agents and farmer cooperatives. With farmers connected to a wider and more transparent market, they are not just dependent on middlemen. In addition, this model also provides direct benefits to farmers, not only financially,

but also in the form of support for agricultural tools and machinery, as well as mentoring and training in sustainable cultivation. This assistance includes environmentally friendly farming techniques, post-harvest, to basic financial management, so that farmers not only receive funds, but also acquire skills to manage their businesses professionally.

Another convenience offered is easy and real-time access to agricultural information, such as market prices, weather, and agricultural technical information packaged through applications and field companions. The easy registration process and complete platform facilities such as financial dashboards, crop reporting, and periodic notifications are designed to make it easier for farmers who are not familiar with technology. The protection of farmers' personal data is also a priority through a robust digital security system, ensuring the protection of farmers' data from misuse.

Value propositions create real social impact, namely by maintaining and improving the welfare of farmers, strengthening social ties in farming communities, and creating long-term and sustainable relationships between farmers and investors. All of these value propositions are designed not only to improve agricultural efficiency, but also to create a resilient, inclusive, and sustainable agricultural system in the Dairi County region.

Customer Relationships in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

The customer relations aspect is one of the main foundations for the success and sustainability of the fintech crowdfunding program for small-scale coffee farmers in Dairi Regency. The relationship built is not just transactional, but oriented towards long-term trust between platforms, investors, and farmers. This trust-building effort is carried out through a personal and participatory approach, including conducting regular field visits by the platform team to see firsthand the condition of farmers and ensure that the funds distributed are used according to the purpose. This activity is also part of efforts to increase transparency and sustainable communication, which is an important value in maintaining the credibility of the crowdfunding system in the eyes of investors and farmers.

This relationship model emphasizes the importance of intensive mentoring and regularly scheduled meetings that not only discuss the technicalities of the use of funds, but also provide space for dialogue between all parties involved. This is an important means to convey the development of farmers' businesses, absorb aspirations, and solve field obstacles quickly and effectively. Thus, the platform not only becomes an intermediary for financial transactions, but also acts as a facilitator and companion for farmers and investors.

In addition, the relationship built is flexible but still committed, with a focus on timely payments as a form of integrity and responsibility on the part of farmers, as well as the platform's commitment to continue to provide support as agreed. However, in certain situations such as crop failure or external factors that affect business results, the platform also shows empathy and understanding of farmers' conditions by offering additional payment time or alternative solutions, such as installment restructuring or special assistance. This approach is critical to ensuring that relationships not only prioritize economic aspects, but also social and humanitarian values for small-scale farmers.

The customer relationships model is designed to create sustainable, long-term relationships, where farmers feel valued, supported, and empowered, while investors feel secure and confident that their investments are positively impacting the economy and society. Thus, the ecosystem created becomes inclusive and sustainable, strengthening the economic resilience of farmers and encouraging the growth of fair and productive agricultural practices in Dairi Regency.

Figure 3. Customer Relationships in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency. Source: Researcher-processed data (2025)

Customer Segments in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

Customer segmentation is not only based on demographic and psychographic characteristics, but also on their needs, preferences, and motivations in interacting with the platform. This model is built to bridge the two main entities that have a vital role, namely investors/financiers and small-scale coffee farmers as beneficiaries. From the investor side, the target segment is not high-profit-oriented capitalists, but rather social investors or impact investors, namely individuals or groups who are willing to invest their capital with a high social return orientation, in addition to reasonable financial returns. Investors usually have an understanding of the importance of supporting the agricultural sector and care about the sustainability of smallholder lives. They do not always prioritize large material profits, but rather emphasize on safe and contract-compliant refunds, accompanied by direct benefits for farmers' welfare. Crowdfunding is not only an investment instrument, but also a form of active participation in village economic development and strengthening food security.

Other investor segments come from coffee business actors, such as coffee shop owners, roasting entrepreneurs, exporters, and distributors who have an interest in the stability of the supply of quality coffee. They have an interest in ensuring that the supply chain from upstream to downstream runs smoothly, so that their participation in this fintech crowdfunding will have a dual function, namely as a form of medium-term investment and a strategy to secure supply from the assisted farmers. In this case, business actors benefit not only in terms of financial benefits, but also from supply stability, long-term trade relationships, and the potential to improve product quality through training and assistance to farmers.

Meanwhile, in terms of the main beneficiaries, namely small-scale coffee farmers in Dairi Regency, there are several important sub-segments. The first is farmers who are economically vulnerable, namely those who do not have adequate access to formal financing such as banks and cooperatives. They are often trapped in an exploitative informal lending system with high interest rates and the risk of losing assets. Through the fintech crowdfunding model, they are expected to obtain fair, fast, and transparent access to capital, which allows them to purchase seeds, fertilizers, work tools, and manage their gardens optimally.

Second, young farmers or millennials who are in productive age and are open to the use of technology. Farmers from this group generally have great potential to develop faster, receive education more easily, and be open to digital-based collaboration. They are agents of change that can drive innovation in the coffee farming system in their region and become a bridge between local traditions and modern technology.

Third, there is a segment of independent and progressive farmers, namely farmers who have previously had initiatives to develop, but are still constrained by access to markets, information, and capital. They usually have enough farming experience, but have not been able to move up due to limited capital and infrastructure. This platform opens up opportunities for them to establish direct relationships with investors, expand market networks, and get technical and financial support on an ongoing basis.

No less important is the sub-segment of farmers who are looking for quick and reliable solutions, who generally need funds in a short period of time for urgent needs such as fertilizer purchases, land improvements, or labor costs. They require a flexible funding system, simple procedures, and quick disbursement without

excessive risk. With the digitization feature embedded in the platform, the loan application process becomes more efficient, data-based, and has minimal bureaucratic barriers.

With segmentation that targets the real needs and characteristics of stakeholders, this fintech crowdfunding is expected not only to be a financial intermediary tool, but also a catalyst for inclusive economic and social change. Through alignment between investor orientation and farmer needs, this business model paves the way for the formation of a strong, transparent, and sustainable coffee farming ecosystem in Dairi Regency. This technology-based approach will be increasingly relevant in facing the challenges of the times while creating a positive impact that goes beyond just financial gains.

Key Resources in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

Key Resources are important pillars that underpin the entire business process. These resources cover various aspects, ranging from human, physical, technological resources, to knowledge and support systems that are integrated with each other. First, human resources (HR) are the main force in running this platform. The human resources consist of coffee farmers as core actors in the ecosystem, field assistants, and agricultural extension workers who act as a bridge between platforms, farmers, and investors. Farmers are not only positioned as recipients of assistance, but also as active partners in maintaining investment success, maintaining crop quality, and building mutually beneficial relationships. Facilitators and extension workers have a strategic role in providing education, ensuring compliance with cultivation standards, and submitting development reports to investors in a transparent manner. The quality and capacity of these human resources will greatly affect the success of fintech crowdfunding implementation, both in terms of trust, smooth communication, and business productivity.

Second, the aspect of physical resources is also very important. In this context, the existence of coffee farmland, internet access, and devices such as mobile phones are key in supporting the digitalization of farming processes and financing. Productive land managed by farmers becomes the object of the investment itself, and must be recorded and verified through the system. The internet and mobile phones allow farmers and their companions to connect directly to crowdfunding platforms, deliver data in real-time, receive market price information, and access virtual training or guidance. Therefore, the provision of internet access in rural areas or remote areas in Dairi is one of the priorities that needs to be fought for through multi-stakeholder cooperation, including with local governments.

Third, training, education, consulting, and facilitation are also among the main resources that are no less important. Farmers need to be given basic knowledge about finance, bookkeeping, crop management, and the use of digital technology, so that they are able to run their businesses professionally and accountably. Agribusiness consultants and facilitators who are experts in the fields of coffee farming and financial technology will strengthen the mentoring system and accelerate the adoption of innovations by farmers. With continuous training, farmers will not only rely on financial assistance, but will be more independent in managing and developing their businesses in a sustainable manner.

Fourth, system-based and financial support resources such as BI Checking, bookkeeping applications, and farmers' risk and performance rating systems are urgently needed to build credibility and trust in the platform. BI Checking is used as a form of initial assessment of prospective farmers who receive funds, albeit with a more adaptive approach to the condition of smallholders who are not yet bankable. Digital bookkeeping applications are provided as a tool so that farmers can record their business activities in a simple but standardized manner. This is an added value for investors, because they can monitor farmers' financial statements regularly. In addition, data-based assessments will also strengthen the evaluation process and selection of further aid recipients.

Fifth, digital systems and infrastructure include the fintech crowdfunding platform itself, data security systems, monitoring dashboards, and digital group forums as a space for interaction and exchange of information between farmers and investors. This system is designed to be user-friendly and accessible to farmers with limited digital literacy. Group forums function as agricultural social media that builds collective spirit, exchange of experiences, and psychological support between farmers. This infrastructure will create an interconnected digital community, accelerate the flow of information, and strengthen cohesion between stakeholders in the coffee value chain.

By utilizing and strengthening various key resources, the fintech crowdfunding business model built will not only be able to distribute funds, but also strengthen the capacity and independence of small-scale coffee farmers systematically. All of these resources must synergize with each other in order to create an inclusive, modern, and sustainable agricultural ecosystem in Dairi Regency. Technology support and human resource

capacity building are the main keys to creating a transformation that is rooted from the bottom but able to respond to global challenges.

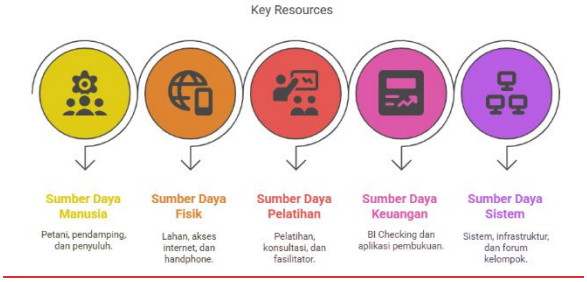

Figure 4. Key Resources in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

Source: Researcher-processed data (2025)

Channels in Fintech Business Model Crowdfunding for Small-Scale Coffee Farmers in Dairi Regency

Channels are channels of communication, information distribution, education, and interaction relationships used by platforms to reach and serve users, be they farmers, investors, or supporting partners. The strategy of selecting and integrating channels must be adjusted to the local characteristics of farmers, the availability of infrastructure, and the level of digital literacy so that the value proposition of the platform can run effectively.

One of the main channels is the use of a networking platform, which is an application-based online system or website that is the center for information, transaction, education, and reporting services. This platform will be a formal means of connecting farmers with investors directly and transparently. However, because the majority of farmers in areas like Dairi may not be fully familiar with digital technology, the use of this platform must be accompanied by a strong local and offline approach.

This is where the role of local leaders or leaders of farmer groups is very important. They are the spearhead in bridging communication between fintech platforms and farmers, as well as being figures who are trusted and respected by the community. The leader of the farmer group can play the role of a coordinator in conveying information on the crowdfunding program, conducting initial verification of farmer data, and organizing farmer participation in training and mentoring. Communication channels through regular farmer group meetings are also very effective in introducing the platform's features, answering questions, and building the trust needed in the long run.

In addition, Field Agricultural Extension (PPL) is also the main channel in fostering relationships with farmers. PPL not only plays a role in delivering technical material on cultivation, but also becomes an agent of digital change by explaining the functions and benefits of using fintech platforms in helping capital and sales of coffee crops. Collaboration between PPL, farmer group leaders, and field assistants will create a solid information distribution network that can reach every layer of farmers individually and collectively.

Social networks and local government institutions such as the agriculture office, BUMDes, farmer cooperatives, and local financial institutions (banks, micro-institutions) must also be used as supporting channels that strengthen the legitimacy and acceptance of the platform. This institutional involvement not only simplifies the process of validating farmer data and distributing funds, but also provides administrative and legal sustainability guarantees. For fast and targeted distribution of information, the use of simple digital-based communication media such as WhatsApp, SMS, and Android applications is the main choice. WhatsApp Group can function as a coordination center between farmers, a place to share market price information, crop progress, visit schedules, and activity reporting. SMS remains relevant as a backup if farmers do not have stable internet access. Meanwhile, the platform's Android application will provide features such as loan application, harvest reporting, investment status monitoring, and training information or field visit schedules.

An omnichannel-based information distribution strategy is also very important. This includes a combination of offline communication (field verification, face-to-face meetings, in-person training) with digital communication (via online platforms, WhatsApp, email, and periodic reports within the system). This approach is needed to create flexibility in reaching farmers spread across regions with diverse geographical conditions and access. If possible, social media such as Facebook or Instagram can be used as an additional channel to target millennial farmers who are more open to technology and to attract the interest of potential urban investors who are interested in the concept of social impact investing. Social media can also be a medium for public education

about the importance of supporting sustainable agriculture and introducing inspiring stories of fostered farmers. Finally, village meetings or farmer group deliberations remain an effective traditional channel in mobilizing community participation. By taking advantage of this routine agenda, the platform can deliver live presentations, demonstrate how to use the application, and conduct questions and answers openly. This is also an important moment to build social trust (social capital) in the community-based fintech ecosystem.

With a multichannel approach that is adaptive to the local conditions of farmers and gradual integration of technology, the channels designed in this business model will be a strategic link in creating a strong, participatory, and sustainable collaboration between all parties involved in the fintech crowdfunding ecosystem in Dairi Regency.

Cost Structure in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

The cost structure element is a strategic component that must be carefully designed in order to create a balance between the financial sustainability of the platform and the ability of farmers to meet their financial obligations. The cost structure includes all expenses required to run, manage, and develop an inclusive, efficient, and equitable crowdfunding system. First of all, there are significant operational costs for field verification and periodic reporting activities, given that the characteristics of smallholder farmers in Dairi require a physically direct approach to ensure the validity of the data, land conditions, harvest potential, and farmers' commitment to the program. The verifier team or field companion must regularly conduct visits and documentation to ensure that investor confidence is maintained. This requires the allocation of funds for transportation, accommodation, labor, and digital reporting systems.

Furthermore, the platform must also bear the cost of developing and maintaining the digital system that is the backbone of the service. Applications and websites used as a connecting medium between farmers and investors must be kept up to date to maintain security, ease of use, and accurate data storage. This fee includes user interface (UI/UX) development, hosting, servers, data security (cybersecurity), to integration with payment systems and financial reporting.

Another very important component is the cost of training and assistance for farmers. Considering that many small-scale coffee farmers are not familiar with the formal financial system and digital technology, regular training sessions are needed to equip them with basic skills such as financial recording, application use, understanding financing contracts, and more productive cultivation techniques. This training activity also involves costs for materials, facilitators, logistics, and incentives for participants. This model prioritizes the principles of fairness and inclusivity by not charging crop deductions and without burdensome administrative costs for farmers. The financing scheme is designed with a fair profit-sharing approach, where farmers only deposit payments according to the crop yield agreement without having to be burdened with fixed interest as in the conventional lending system. The system also accommodates sharia principles and social sustainability.

In minimizing risk, this model applies the principle of shared risk. This means that if there is a crop failure due to natural factors or a plummeting market price, the risk of loss is not fully charged to the farmer, but is managed together with investors and platforms. This creates a sense of security for farmers to engage in the system without fear of financial pressure in the event of a disaster beyond their control.

In addition, this model provides a flexible loan ceiling of up to 10 billion rupiah, depending on the land area, production capacity, and business feasibility of the farmer. Loan payments are made every harvest season, so that it adjusts to the cash flow of farmers, the majority of whom are seasonal. The scheme also opens up the possibility for extension or delay of payment if certain conditions such as extreme weather or pests affect crop yields.

To make it more affordable and inclusive, installments are designed to be light and interest very low, or even no interest at all in the sharia system. This is intended so that farmers are not burdened and can still maintain their business productivity. In addition, risk protection insurance is also included in the fee structure, where the platform works with agricultural insurance institutions or farmer cooperatives to provide protection against the risk of crop failure, crop death, or other natural disasters.

With a fee structure like this, fintech crowdfunding platforms not only act as a fund provider, but also as a strategic partner for small-scale coffee farmers to develop sustainably, competitively, and economically independently. A transparent, fair, and adaptive cost approach to the conditions of farmers is the key to success in building a sustainable agricultural financing ecosystem in Dairi Regency.

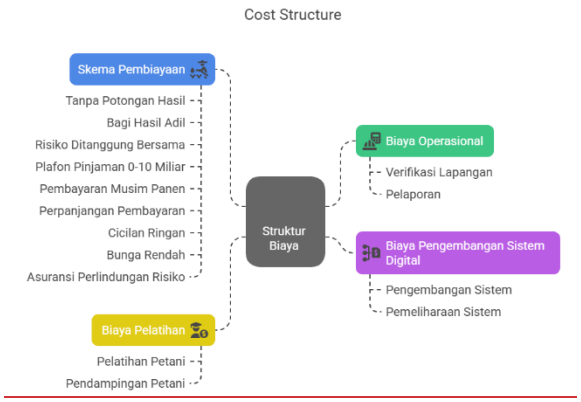

Figure 5. Cost Structure in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency. Source: Researcher-processed data (2025)

Revenue Streams in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

In the Fintech Crowdfunding ecosystem designed to support the sustainability of small-scale coffee farmers in Dairi Regency, the Revenue Streams component is designed with a flexible approach and is oriented towards justice and long-term sustainability. The main revenue streams come from varied return on investment schemes, which are tailored to the risk profile of the investor, the financial capabilities of the farmer, and the characteristics of the coffee commodity harvest season. The scheme includes profit sharing, fixed returns, and post-harvest returns, depending on the initial agreement between the platform, investors, and farmers.

The profit-sharing scheme is the dominant model used, as it provides flexibility and a sense of justice for farmers. In this model, investors receive refunds based on a percentage of the farmer's crop yield or profits, so there is no fixed burden burdensome. Meanwhile, the return scheme remains for investors who want predictability, but with more controlled risk and more conservative returns. As for post-harvest returns, financing is done without installments during the cultivation process, and all liabilities are paid after the harvest is complete, this model is suitable for farmers with seasonal cash flows.

The investment period is also designed to be in line with the coffee farming cycle, which ranges from 9 to 12 months, but still considers the capabilities of each farmer. This is important so that the platform does not create financial pressure that can disrupt the production process. This period also provides enough space for farmers to manage capital, increase productivity, and adjust to the harvest season and market dynamics.

In addition to financial income, the platform also opens up potential income or added value in the form of non-financial returns, especially for social or philanthropic investors. These non-financial rewards include a certificate of social contribution, recognition as a supporter of sustainable agriculture, access to exclusive data, as well as free training to understand green investing and regenerative agriculture. This model not only has an economic impact, but also builds social capital and a positive reputation, both for investors and platforms.

This approach emphasizes the importance of liquidity and cash flow in every financing decision. The platform ensures that the inflows from investor refunds are in line with the outflows from farmers' crop receipts, with strict timing and transparent financial monitoring. The success of this revenue stream management is an important indicator in maintaining the sustainability of this fintech crowdfunding business and strengthening the coffee farming ecosystem in Dairi Regency.

Figure 6. Revenue Streams in Fintech Crowdfunding Business Model for Small-Scale Coffee Farmers in Dairi Regency

CONCLUSION

This study reveals that small-scale coffee farmers in Dairi Regency face various challenges in accessing financing, which are mainly due to limited socio-economic conditions, low financial literacy, and structural barriers such as limited collateral and access to formal financial institutions. In addition, farmers' capital needs tend to be seasonal with varying amounts depending on the production cycle, and they prefer financing schemes that are flexible, community-based, and not burdensome in terms of interest or administrative requirements. As a solution, the *fintech crowdfunding* business model designed with the *Business Model Canvas* and *Value Design Model* approaches has proven to be able to answer these challenges in an adaptive and participatory manner. This model places farmers as the main actors, builds collaborations with various parties such as investors, cooperatives, extension workers, and village governments, and offers exchange rates and tangible results that support the sustainability of farming.

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