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Optimizing Digital Application Development Through Design Thinking: A Case Study of Finpay Partners at PT Finnet Indonesia

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Abstract
Mitra Finpay, a digital financial service application developed by PT. Finnet Indonesia, aims to support business management, particularly for Micro, Small, and Medium Enterprises (MSMEs). Launched in late 2020 and available on both the Play Store and App Store, the application has garnered a significant user base. However, active users remain minimal, and the app's rating lags behind competitors. Initial user interviews revealed discomfort and usability issues as key concerns. This study aims to identify and address user needs for Mitra Finpay by applying the design thinking methodology. Using a descriptive qualitative approach, data were gathered from external stakeholders (users) and internal stakeholders (developers and experts). The design thinking process comprised five stages: empathize, define, ideate, prototype, and test. During the empathize stage, interviews and observations were conducted to create user journey maps, empathy maps, and identify pain points. The define stage prioritized these problems and generated frameworks such as jobs-to-be-done, points of view, and "how might we" statements. Solutions were brainstormed during the ideate stage, focusing on user-centric features. The research resulted in a prototype featuring five new functionalities: onboarding, non-QRIS registration, AI-powered registration data verification, a non-QRIS dashboard, and QRIS registration. Usability testing scored the prototype at 86, deemed acceptable, with positive feedback from participants. Suggestions on onboarding, data completion forms, and dashboard design were promptly addressed, indicating a practical pathway for improving user experience and enhancing application adoption.

Keywords: Digital Transformation; Digitalization; Design Thinking
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SDGs: Quality Education (4); Decent Work and Economic Growth (8); Peace, Justice and Strong Institutions (16)

1.0 INTRODUCTION

The world is currently entering a new era commonly referred to as Industry 4.0, or more widely known as the Fourth Industrial Revolution (4IR). According to (Savitri, 2019), the Fourth Industrial Revolution represents the fourth phase of industrial development, which began with the First Industrial Revolution in the 18th century. The 4IR era is characterized by the convergence of technologies that blur the boundaries between physical, digital, and biological domains, collectively known as cyber-physical systems (CPS). In addition, this transformation is checked by the rise of mechanical developments over different areas. These areas incorporate mechanical technology, counterfeit insights (AI), nanotechnology, quantum computing, biotechnology, the Web of Things (IoT), the Mechanical Web of Things (IIoT), fifth-generation (5G) remote innovation, added substance manufacturing/3D printing, and completely independent vehicles (Yuningsih, 2020).

According to an article by (Nugroho, 2019), advancements in technology have led to the rapid growth and widespread adoption of digital transactions across various economic sectors. One of the primary users of digital transactions with significant potential in Indonesia is Micro, Small, and Medium Enterprises (MSMEs), commonly referred to as *Usaha Kecil, Mikro, dan Menengah* (UMKM). Advancements in technology have a profound influence on the economy. As the pace of economic digitization accelerates, the importance of electronic payment systems becomes increasingly apparent and essential. These systems form the backbone of financial transaction processing, enabling efficient and rapid operations while reducing dependence on physical cash (Nugroho, 2019)

Agreeing to (Nugroho, 2019), the progression of innovation proceeds to drive the evolution of digital transactions, which are progressively utilized over different financial divisions. In Indonesia, one of the essential

clients of advanced exchanges is Micro, Small, and Medium Enterprises (MSMEs), a noteworthy fragment of the market. However, information from the Service of Cooperatives and MSMEs show that roughly 70.2% of MSMEs confront challenges in receiving computerized innovation (Nurdiyanto, 2023) These challenges incorporate restricted get to capital, shortage of crude materials, and battles with computerized selection.

In expansion, the Office of MSME Advancement and Buyer Security at Bank Indonesia highlights four basic issues confronted by MSMEs in Indonesia:

1. Ensuring MSMEs are sustainably integrated into the advanced biological system.
2. Enhancing the capacity, quality, and item advancement of MSMEs to boost their commitment to the economy and worldwide exchange.
3. Extending monetary get to, as right now as it were 25% of Indonesian MSMEs have get to budgetary administrations.
4. Advancing natural mindfulness by empowering MSMEs to embrace eco-friendly hones in reaction to worldwide natural dangers.

To address the challenges and issues mentioned above, the Indonesian government, through the Ministry of Trade and the Ministry of Communication and Information Technology (KOMINFO), continues to strive toward improving the quality of life for Micro, Small, and Medium Enterprises (MSMEs). These efforts focus on encouraging MSMEs to integrate into the digital ecosystem (go digital). One significant aspect of digital transformation in financial transactions is the implementation of the Quick Response Code Indonesian Standard (QRIS). QRIS consolidates various QR codes from different Payment System Service Providers (PSSPs) into a unified and standardized QR code system (Nada et al., 2021).

QRIS promotes financial inclusion by reaching Micro, Small, and Medium Enterprises (MSMEs) that previously lacked access to electronic payment systems (Apri Nita et al., 2024). This advancement creates new opportunities for MSMEs to expand their customer base and increase revenue. Additionally, a critical service currently in demand among MSMEs is the Point of Sale (POS) system (Shatina-Saad et al., 2024).

A study indicates that approximately 70% of businesses in Indonesia have adopted POS systems. However, this widespread market penetration has also intensified competition among providers vying for market share. This heightened competition drives continuous innovation, with POS providers consistently enhancing their features, improving services, and offering tailored solutions to meet the unique needs of MSMEs in Indonesia (Paramita, 2019)

According to (Lianto et al., 2018), application developers possess the potential to innovate and improve their products continuously. This includes the Mitra Finpay application developed by PT. Finnet Indonesia. However, user reviews on Google Play reveal widespread dissatisfaction with the app. Commonly reported issues include incomplete features, an unsatisfactory user experience during transactions, limited profile setting options, and other functionality concerns. These challenges have contributed to the app receiving a low rating of 1.8, despite being downloaded over 10,000 times.

Since its launch in late 2020, the number of Mitra Finpay subscribers has steadily grown. However, a significant challenge persists, with over 75% of subscribers remaining inactive—less than 25% actively conducting transactions. This data highlights a considerable opportunity for innovation to enhance Mitra Finpay's performance and better align with user needs (PT. Finnet Indonesia, 2024).

To address these challenges, redevelopment efforts are essential, requiring a thorough evaluation and improvement of the Mitra Finpay application. A widely adopted approach for evaluating and improving digital smartphone applications is the design thinking method. Design thinking is a problem-solving framework that emphasizes a human-centered approach, prioritizing technological feasibility and economic viability while focusing on the customer's perspective (Lazuardi & Sukoco, 2019).

2.0 LITERATURE REVIEW

Strategic Management

Strategic management is both an art and a science, including the forms of defining, executing, and assessing key choices over organizational capacities to attain long-term objectives. It functions as an coordinates framework where different components connected and impact each other, working cohesively toward shared destinations (Kozlowski & Ilgen, 2006).

Concurring to (Fattah, 2006), the essential destinations of key administration can be summarized as takes after:

1. To successfully and effectively actualize and assess the chosen methodology.
2. To evaluate performance, audit and reexamine improvements, and make fundamental adjustments or rectifications in case deviations happen amid methodology usage.
3. To continuously refine the characterized strategy to adjust with changes within the outside environment.
4. To reliably analyze the qualities, shortcomings, openings, and dangers (SWOT) confronted by the organization.
5. To ceaselessly progress items to adjust with advancing client inclinations.

Innovation

According to (Drucker, 2012), innovation serves as a fundamental tool that empowers entrepreneurs to uncover new business opportunities or offer unique services. It involves enhancing existing products, services, or processes and can also result in the creation of entirely new solutions that increase business value.

(Yuwono & Indrajit, 2020) describe design thinking as a versatile concept applied across various fields. It is a cognitive, strategic, and practical process used to develop design concepts (Dinata & Marlim, 2020), such as proposals for new products, structures, or systems. (Brown, 2019) elaborates that design thinking is a human-centered approach to innovation. This methodology focuses on harmonizing user needs, technological capabilities, and the demands of business success, offering a comprehensive framework for creating impactful solutions.

Concurring to (Yuwono & Indrajit, 2020), there are four key standards within the application of design thinking, which are as takes after:

1. People-Centered:
   Design thinking points to illuminate human issues and must hence include compassion for the individuals who will use the arrangements. Understanding desires, desires, and challenges of clients is central to the method.
2. Highly Creative:
   The issues addressed by design thinking frequently include longstanding issues that conventional strategies have not illuminated. These challenges require imaginative, out-of-the-box considering, going past ordinary approaches to discover inventive, offbeat arrangements.
3. Hands-On:
   After creating imaginative thoughts, the following step is to move from discourse to activity. A center rule of design thinking is to avoid over the top talking, thinking, and meetings, focusing instead on actualizing imaginative, solution-oriented thoughts straightforwardly.
4. Iterative:
   Design thinking is an iterative prepare that includes gathering input from clients, understanding what works well, and recognizing zones for change. Based on this input, the arrangement is refined and upgraded until it successfully addresses users' needs and understands their issues.

Design Thinking

Design thinking involves applying tools and methods that are derived from design practices to address challenges and create innovative solutions (Cruickshank & Evans, 2012; Ghina & Afifah, 2021).

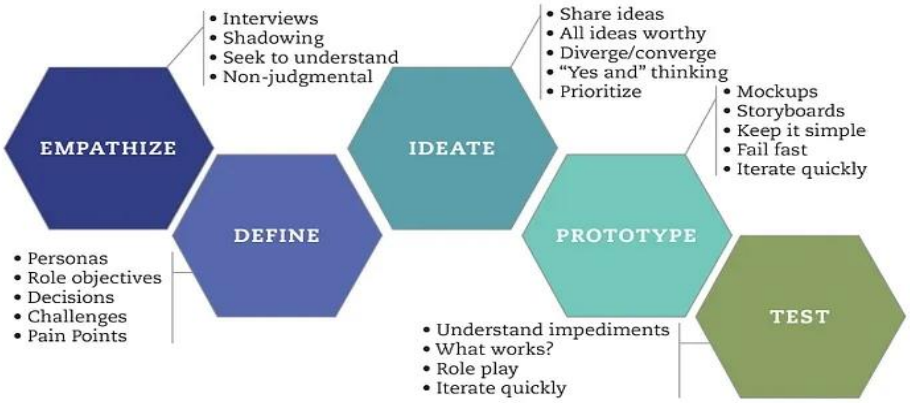


Fig 1. Stanford d.school Design Thinking Process

Source: (Yuwono & Indrajit, 2020)

The most widely used and proven effective design thinking approach comes from Stanford University, which has a dedicated unit focused on this field. Figure 1 outlines the design thinking process from Stanford University. As shown in the figure, the design thinking process consists of five stages, which, according to (Yuwono & Indrajit, 2020)), are as follows:

1. Empathize
   Empathize refers to the ability to understand and connect with the emotions others are experiencing, allowing problem-solving from their perspective (Hatammimi & Andini, 2022). Empathy forms the foundation of human-centered design. It involves developing compassion for the users by understanding their values, experiences, circumstances, and emotions related to the problem being solved.
2. Define
   The next step in the design thinking process is defining what users need, expect, or desire. This stage is used to analyze and describe various inputs, including complaints or suggestions. After gathering insights from the empathy stage, the designer defines the root cause of the problem, which guides the entire design thinking process. In this stage, the designer identifies the key components of the solution that will improve its usability and the challenges the solution will address. The "Define" stage breaks down the empathy findings into needs

and insights, establishing the scope of key challenges. A problem statement, known as the Point of View (POV), is created, which goes beyond merely defining the problem and offers a unique design vision framed around a specific user.

3. Ideate
   In this step, creative idea generation is emphasized, often through brainstorming, mind mapping, and similar techniques (Nopendri & Nasien, 2020). The designer generates as many ideas as possible at the beginning of this stage to explore the most effective solutions that align with users' needs or desires. All stakeholders are encouraged to contribute creative ideas and suggestions to find solutions that address the core issue identified in the previous stage.
4. Prototype
   Prototyping involves creating models, such as solution prototypes, product models, service models, and others, to communicate the creative ideas and proposed solutions visually. This allows all stakeholders, especially users, to see how the ideas and suggestions have been translated into a tangible form. The prototype serves to gauge users' reactions to the solution, which can then be refined in another iteration to improve it further. Successive prototypes are expected to be better than the previous ones, supporting the discovery of new solutions based on user feedback and ongoing improvement (Sinaga & Hajjah, 2020).
5. Test
   To determine whether the proposed solution effectively addresses the users' problems, it must be tested with the users. The design thinker does not need to have a final solution at this point, but the prototype should generate feedback that can serve as a benchmark for the final solution. Testing involves evaluating the prototype developed in the previous step to assess user acceptance of the solution, providing valuable insights for further refinement.

3.0 METHODOLOGY

Research, based on its methodology, is divided into three types: quantitative, qualitative, and mixed methods. Therefore, this study is conducted using a qualitative method. According to (Creswell & Creswell, 2014) qualitative research is a scientific research process aimed at understanding human issues in a social context by creating a comprehensive and complex description, presenting detailed perspectives from information sources, and being conducted in a natural setting without any intervention from the researcher (Chen & Gustientiedina, 2024).

According to (Rukajat, 2018), This type of research falls under descriptive research. Descriptive research is a study that aims to realistically and accurately describe current phenomena. It involves creating systematic, factual, and precise descriptions, images, or representations of the facts, characteristics, and relationships between the phenomena being studied (Susanti et al., 2024).

Based on the timing of the research, there are two types: cross-sectional and longitudinal (Susanto et al., 2024). Cross-sectional research is a study where data is collected only once (it can span over a period of days, weeks, or months) to answer the research question (Sekaran & Bougie, 2016). Longitudinal research, on the other hand, is a study where data is collected at multiple points in time across different locations to answer the research question (Sekaran & Bougie, 2016). Based on the data, qualitative research has data in the form of words generated from broad answers to interview questions, responses to open-ended questions in questionnaires or through observations, or readily available information collected from various sources such as the Internet (Sekaran & Bougie, 2016).

In this study, the operational variable related to Design Thinking is adopted from (Brown, 2019). The interview questions regarding user experience are adopted from the study by (Ghina & Afifah, 2021) to collect data specifically at the Empathize stage of Design Thinking. In data collection, the technique used is a semi-structured interview (Effendy & Gusrianty, 2024). The measurement tools have undergone a pilot test, ensuring that the tools used in this study have been refined from previous research (Nazara & Nasien, 2024). The research questions are presented in Table 1.

Table 1. Research Question

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
Design Thinking "A human-centered approach to innovation that aims to integrate the needs of people as users, the possibilities of technology, and the requirements for business success." (Brown, 2019)					

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
a	*Emphatize*	**User Understanding of Mitra Finpay** As an MSME entrepreneur, share your experiences and perceptions regarding the Mitra Finpay application as a digital payment solution for your business. Begin by explaining how you first heard about the application and what intrigued you to learn more about it. Describe the process of downloading the app and your impressions of the marketing and promotional efforts undertaken. Highlight any specific features or advantages of the application that caught your attention and how they enhanced your understanding of its use. Share success stories related to Mitra Finpay that you've heard from others and explain how these influenced your perception. Elaborate on how often you conducted personal research or sought additional information before deciding to adopt the application for your business. Finally, specify what you like and dislike about the Mitra Finpay application. **Considerations for Using Mitra Finpay** As an MSME entrepreneur, provide detailed considerations in choosing Mitra Finpay as your digital payment solution. Explain your evaluation process regarding the app's security and reliability before integration and how important its features are for facilitating transactions and financial management. Discuss whether you compared it with other solutions and the influence of user reviews. Outline your considerations regarding costs and ease of integration with your business system. Highlight the importance of responsive customer service and concerns about	External informant (Mitra Finpay user)	Documen-tation in the form of verbatim interview recordings and interview photos.	The informant shares their expe-rience using Mitra Finpay honestly and discusses their expectations for the development of Mitra Finpay to meet user needs. **Tools**: - Persona Profile - Customer Journey Map

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
		regulatory compliance and data privacy. Lastly, evaluate the long-term potential of Mitra Finpay in enhancing efficiency and promoting business growth for MSMEs. Customer Experience with Mitra Finpay Describe your complete experience using the Mitra Finpay application, starting from when you first learned about it, the process of downloading and registering an account, to upgrading your account and utilizing transaction features. Provide detailed insights into each stage, including challenges faced, assistance needed, and features that caught your interest. Explain your experience managing transactions and financial records, the ease of accessing financial reports, and payment receipt processes. Share your feedback and suggestions for app improvement. Additionally, detail any features or services you desire but are not currently available and aspects that need enhancement. Assess the comprehensiveness of the information and guides within the app, the importance of search functions for finding information, and your comfort level with providing personal data. Discuss the importance of clear confirmations or follow-ups, your evaluation of service quality, challenges encountered, ease of getting support, response speed, and satisfaction with the information and guidance provided. Include your experiences with training or webinars, suggestions for service quality improvements, satisfaction with after-sales service, and willingness to recommend the application to other MSMEs.			

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
		Customer Satisfaction with Mitra Finpay As a user of the Mitra Finpay application, share your overall experience. Describe your level of satisfaction, the impact of the application on your business performance, and whether you would recommend it to other MSMEs. Outline your considerations for using other products or services from Mitra Finpay and your reasons for continuing to use the app despite alternative options. Compare the added value offered by Mitra Finpay with other applications. Provide your assessment of Mitra Finpay's commitment to helping MSMEs grow, their responsiveness to user feedback and complaints, and your trust in Mitra Finpay as a business partner. Explain your plans for continued use of the app in the long term and your evaluation of Mitra Finpay's communication with users, as well as the ease of obtaining information and support. Lastly, offer your suggestions on how Mitra Finpay could improve customer communication and support, your expectations for enhancing user experience, your opinions on promotional and marketing efforts, and the app features or advantages that stand out and improve your understanding of its use.			
b	*Define*	**Questions for Internal:** What is your understanding of the decline in the rating of the Mitra Finpay application on the Google Play Store? Identify the internal and external factors contributing to this decline. Provide an analysis of the data used to identify the root causes of the problem and share your insights into user interactions with the application and its features. Suggest solutions and	**Internal Informant**: Finnet as the product owner **External Informant**: Mitra Finpay users **Researcher**:The facilitator	Documentation in the form of user feedback results (in the form of a Google Form).	The data and information collected during the Empathize stage are then used to identify the core problems that will be addressed. **Tools**: - Jobs to Be Done (JTBD) - Point of View (POV)

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
		innovations to address the issues faced by users, including the steps required for their implementation. Elaborate on the collaboration needed from various stakeholders in addressing the problems of the Mitra Finpay application, as well as the challenges and risks the company may face in the future. **Questions for Expert:** As an expert in Point of Sale (POS) services, provide a comprehensive analysis of the role and significance of POS services in Indonesia's economy. Explain the trends in POS services over the past five years, including the key drivers encouraging MSMEs to adopt these solutions and the major challenges faced by the industry. Describe the current state of the POS services industry in Indonesia, highlighting the key players and their respective market shares. Identify the latest innovations or solutions required to enhance market penetration, along with other areas that warrant further research. Finally, offer strategic recommendations for Mitra Finpay to maintain its competitiveness against other POS service providers.			- How Might We (HMW)
c	*Ideate*	How Can We Design a Fast and Simple Registration Process to Ensure Users Like Resty Can Begin Using the Application Without Obstacles and Feel Comfortable During the Verification Process?	**Internal Informant:** Finnet as the product owner **Researcher:The facilitator**	Documentation in the form of notes and photos of the process of formulating ideas as solutions	Generate creative ideas and then prioritize the ideas that will be used as solutions to the problems identified in the **Define** stage. **Tools:** Brain-storming 2x2 matrix
d	*Prototype*	How can we define and design the ideal prototype for the development of the Mitra Finpay product?	**Internal Informant**: Finnet as the product owner **Researcher**: The facilitator	Documentation in the form of notes and prototype mockups.	Design the ideal prototype based on the needs of Mitra Finpay users. **Tools**: User Flow

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
					Prototype Mockup
e	*Test*	What is the user (customer) response to the development of the Mitra Finpay application?	**External Informant**: Mitra Finpay users who are interviewed during the **Empathize** stage.	Documentation in the form of interview recordings and ques-tionnaire results.	The informant shares their experience using the latest version of the Mitra Finpay application (the versionafter development). **Tools**: Feedback Mockup (dalam bentuk Google Form)

4.0 RESULTS AND DISCUSSION

In this study, the researcher collects information through interviews with 8 (eight) outside and inner sources. The determination of sources is based on their association within the utilization and improvement of the Mitra Finpay application. The chosen sources are anticipated to supply comprehensive data and offer a total understanding of the Mitra Finpay application.

This considers employments the design thinking approach, which comprises of five stages: Empathize, Define, Ideate, Prototype, and Test. The introductory step to create discoveries in this inquire about includes information collection, which is gotten through strategies such as interviews, perceptions, or documentation. Particularly, with the in-depth meet method, the analyst looks for to extricate point by point data from the sources. This can be taken after by creating an outline of Information Lessening to help the analyst in drawing exact conclusions and accomplishing a comprehensive understanding of all the collected information.

Emphasize

In this stage, the researcher interacts directly through interviews with user sources, starting with initial questions. This is done to observe and understand the issues directly from the users' perspective. Data collection is facilitated using a recorder, which is then transcribed verbatim. The interview results from the users are subsequently reduced by summarizing the responses from each user source on each section. A User Journey Map is a tool used to visualize the user experience. In this study, both active and inactive users were interviewed to identify the elements of the User Journey Map that influence the customer experience. The results of the User Journey Map as analyzed by the researcher. The collected informants are coded as follows: PA1-A, PA2-E, PA3-M, PTA1-D, and PTA2-DW.

A. Active User Persona 1 (PA1-A)

Aan, the owner of a shoe store with a monthly turnover of IDR 30 million, discovered the Mitra Finpay application through a friend's recommendation. He was intrigued by the app's potential to support his business, particularly in transaction management and financial recording (Andra & Hajjah, 2020). After researching further, he compared Mitra Finpay with other digital payment solutions and decided to download it due to its promising features. The download process went smoothly; however, the onboarding phase proved challenging. The lengthy registration process and the requirement to input numerous documents caused frustration, leading him to question the necessity of these documents and the time involved. Despite these initial hurdles, once the registration was complete, Aan began using key features such as QRIS and transaction recording, finding them highly effective in streamlining his work. At one point, he faced technical issues during balance top-up and report synchronization. Although he contacted customer service, he was disappointed by their slow response. After several months of use, Aan evaluated the app as generally beneficial, despite some technical challenges. He decided to continue using it due to its overall advantages and expressed an intention to recommend it to others, provided the technical issues are resolved.

B. Active User Persona 2 (PA2-E)

Erna is an employee who runs a side business selling Teh Solo, generating approximately IDR 9 million in monthly revenue. She first learned about the application through a recommendation from a relative and positive reviews on social media, which encouraged her to try it as a QRIS payment solution with additional

sales features. Erna evaluated the application's benefits and efficiency by reassessing its impact on her business after several months of use. While the app's download process was straightforward, she experienced confusion due to the lack of clear demos or tutorials. During her usage, she encountered recurring technical issues that led her to question the application's reliability, although it remained helpful for daily transactions. When facing issues such as balance top-ups and report synchronization, Erna felt frustrated with the slow response from customer service. However, once the problems were resolved, she expressed satisfaction with the outcomes. Ultimately, if the application meets her expectations following improvements, she is likely to recommend it to friends or colleagues.

C. Active User Persona 3 (PA3-M)

Mei is a private sector employee who runs a side business operating a convenience store with a monthly revenue of approximately IDR 7 million. She discovered the application through a friend's recommendation, who also runs a business and highlighted the need for QRIS and POS features. Mei compared the Mitra Finpay application with other alternatives before deciding to download it. Initially, she felt confident to proceed with the registration process after hearing her friend's explanation about the benefits of Mitra Finpay in improving business efficiency. During onboarding, she completed her personal data and the necessary documents for verification to start using the application. When she encountered technical issues, Mei reached out to customer service to resolve problems related to registration status and fund receipt. She expressed satisfaction with the responsive customer service, which promptly addressed her concerns. However, recurring technical issues raised doubts about the quality and stability of Mitra Finpay, even though the application remained useful for business record-keeping and payment processing. Mei shared her positive experiences with other entrepreneurs when the application performed as expected. She felt satisfied after the technical issues were resolved and the application functioned smoothly. The QRIS feature in Mitra Finpay greatly facilitated non-cash payments, providing a practical and efficient solution [10]. If her overall experience remains positive, Mei is likely to recommend the application to friends and fellow business owners.

D. Inactive User Persona 1 (PTA1-D):

Dimas is an employee with a side business selling banana chips, generating a monthly revenue of approximately IDR 50 million to IDR 100 million. His experience with the Mitra Finpay application began with interest and optimism after discovering the platform through TikTok (Yanto & Putri, 2020). During the onboarding stage, Dimas downloaded the application, began entering his data, and attempted to verify his account. However, he encountered technical issues that disrupted the registration process, such as difficulties uploading documents and frequent system errors. These challenges led to feelings of frustration and disappointment, raising doubts about the application's quality. After completing a lengthy registration process that required numerous documents, Dimas eventually gained access to the application's digital transaction recording features. However, recurring technical issues persisted, undermining the app's potential to streamline operations and improve the registration experience. Due to these repeated challenges and the unclear processes, Dimas decided to discontinue using the application. He felt that the negative experiences during registration and verification outweighed the potential benefits and concluded that he could not recommend the application to others.

E. Inactive User Persona 2 (PTA2-DW):

Dwi is a baby and children's clothing retailer with three branches located in Semarang, Cepu, and Pati. Her business generates a monthly revenue of approximately IDR 80 million, with an increase during the Eid holiday season. Her experience with the Mitra Finpay application began when her child recommended it, having learned about it from a friend. This initial recommendation piqued her interest and curiosity about whether the application could simplify transaction management for her business. Dwi started considering the application after comparing it with other well-known digital payment solutions. However, she felt that she lacked comprehensive information before trying it. Her challenges began during the download and registration stages, where she encountered numerous technical errors and the requirement to upload many documents. Although optimistic, she harbored doubts about whether the application could fully meet her business needs. During the Initial Use phase, Dwi began utilizing the application to accept payments and record daily transactions through the QRIS feature. She appreciated the convenience the QRIS feature offered for payment processing and was reassured by her child that the application was secure. However, she soon faced issues such as technical errors in conducting mobile credit transactions and slow customer service responses. These problems deepened her doubts about the application's reliability and suitability. After experiencing transaction failures, Dwi reassessed the application's viability, questioning whether it was genuinely beneficial or disruptive to her operations. Despite recognizing some of the app's advantages, persistent issues, especially with mobile credit transaction failures, led her to discontinue its use. Ultimately,

Dwi decided against recommending the application and opted to endorse other alternatives she found more reliable.

Define

At this stage, the researcher first determines the priority of the problem. Then we enter the Jobs To Be Done (JBTD) process. After that, then enter the Point of View (POV) and How Might We (HMW) processes. The following is the Define process in this research.

1. Problem Prioritization

   From the problem priorities that have been created, in the process of determining the priority scale of this problem, the problem that has the highest priority scale will be taken, namely problem number 1. This is in accordance with the confirmation carried out by the researcher to all users as in Figure 2.

Form_Responses1

Timestamp	Nama :	Respon Layanan Pelanggan yang Lambat	Masalah Teknis pada Fitur Transaksi	Proses Registrasi yang Lama dan Rumit dan status verifikasi yang tidak jelas	Kurangnya Panduan Pengguna atau Demo Aplikasi	Tidak Ada Fitur Pinjaman Modal	Top-Up Saldo yang Terbatas pada Bank Tertentu
9/18/2024 10:56:05	Dimas	Prioritas 1	Prioritas 3	Prioritas 1	Prioritas 2	Prioritas 3	Prioritas 3
9/18/2024 20:56:38	Ernawiyati	Prioritas 2	Prioritas 3	Prioritas 1	Prioritas 1	Prioritas 3	Prioritas 2
9/18/2024 22:00:10	Dwi W	Prioritas 1	Prioritas 2	Prioritas 1	Prioritas 2	Prioritas 3	Prioritas 3
9/19/2024 10:00:32	Aan	Prioritas 2	Prioritas 3	Prioritas 1	Prioritas 1	Prioritas 3	Prioritas 2
9/19/2024 20:58:00	Mei	Prioritas 2	Prioritas 1	Prioritas 3	Prioritas 2	Prioritas 3	Prioritas 3

Figure 2. Problem Priority Confirmation Results

Source: Researcher Data (2024)

2. Jobs to Be Done (JBTD)

   After determining the priority of the problem, the researcher then creates Jobs to Be Done. Jobs to Be Done (JBTD) is an approach that places focus on the tasks (jobs) that users want to complete, not just on the product itself. In addition to improving user experience, JBTD can prioritize the development of relevant features and create more targeted marketing strategies through segmentation based on occupation.

3. Point of View and How Might We

Tabel 2. Point Of View (POV) and How Might We (HMW)

Insight	Needs	Point of View	How Might We
Resty, as a home culinary entrepreneur, faces various challenges. Limited time and resources are the main obstacles in running a business. Additionally, he was frustrated with the complicated and time-consuming registration and verification process. Resty also needs fast and responsive solutions to address problems or questions that arise. He highly values trust and reliability in choosing business solutions.	Resty needs: Application solutions that can be accessed quickly, easily and efficiently to manage your business. Fast, simple and hassle-free registration experience. Certainty of time to be able to use the application after registering.	Resty wants an application that can save her time and effort in running a business. He also wanted a smooth and efficient onboarding experience that allowed him to use the app straight away. And of course, Resty wants business solutions that are trusted, safe and proven to be effective.	**How can we design a fast and simple registration process so that users like Resty can immediately start using the application without problems and feel comfortable during the verification process?**

Ideate

The ideation stage is the process of brainstorming and developing various ideas based on the understanding that has been obtained from the empathy and problem definition stages. The goal is to generate as many potential solutions as possible to the problem at hand.

Table 3. Results of the Brainstorming Process

HMW	Ide	High Value, Low Effort	High Value, High Effort	Low Value, Low Effort	Low Value, High Effort
How can we design a fast and simple registration process so that users like Resty can immediately start using the application without problems and feel comfortable during the verification process?	An intuitive interface design that is easy to navigate and free from technical jargon.	X			
	Provide clear and concise instructions at each step.			X	
	Use automatic verification for data such as email and phone numbers.		X		
	Implement an automation system for the registration process, such as integration with population data or automatic verification systems.		X		
	Add a virtual queue system for the verification process, allowing users to know the estimated wait time and be better prepared.		X		
	Allow users to save their registration progress and continue the process at a later time.		X		
	Provide language options according to the target audience.				X
	Provide clear and concise notifications about the verification status.	X			
	Create a detailed and easy-to-understand SOP (Standard Operating Procedure) for registration for the team.	X			
	A feature preview is required before proceeding with the registration process.	X			
	Integrate the verification system with trusted external databases, such as population data or national identity databases		X		
	Integrate with the existing e-ID system in the target country for digital identity verification.				X
	Procurement of non-QRIS merchant features to facilitate users who only use features other than QRIS (without the need to register for QRIS)	X			
	Utilize existing user data, such as data from other platforms or social media, to speed up the verification process				X
	Leverage APIs from data verification service providers to automate the verification process		X		
	Adjustment of the registration process so that it is less lengthy and faster with the help of AI		X		
	Standardize data formats and types to prevent input errors			X	
	Use facial recognition technology for safer and faster identity verification. (Pay attention to privacy and data security aspects)		X		

HMW	Ide	High Value, Low Effort	High Value, High Effort	Low Value, Low Effort	Low Value, High Effort
	Adjustment of the QRIS registration verification process with hybrid verification, Human-AI integrated system.		X		
	Adjustment of the initial registration verification process (KTP & Selfie Photo) with AI and Automation systems	X			

Prototype

After the Ideate organize, a Hi-Fidelity Model is made utilizing the Figma application, in collaboration with the application designer and UI/UX originator. The analyst facilitates with the designer within the creation of the model, actualizing the thoughts that were created amid the ideation arrange and affirmed with the clients. Underneath is the model utilized in this consider. The portrayal of the application model is as takes after:

- Mockup Fitur Onboarding

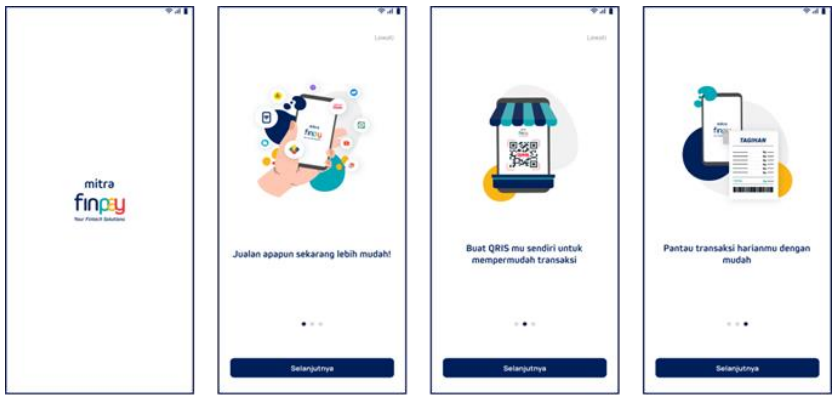
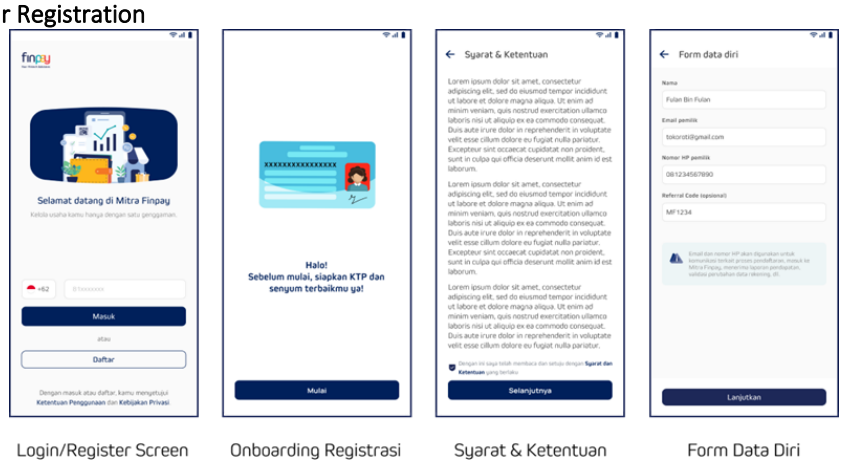
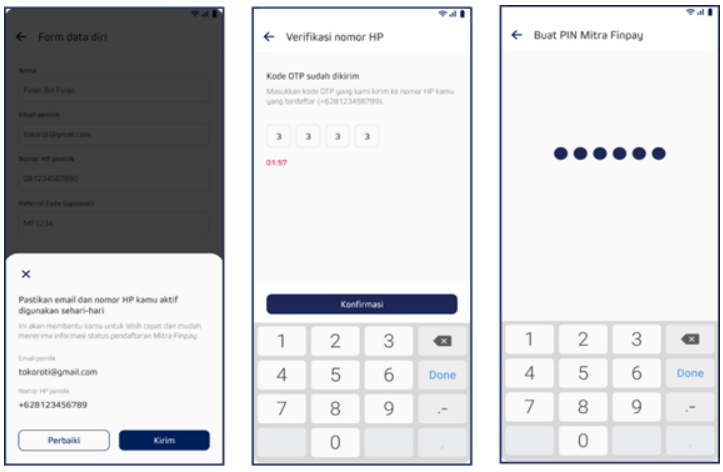


Figure 3. Mockup Fitur Onboarding

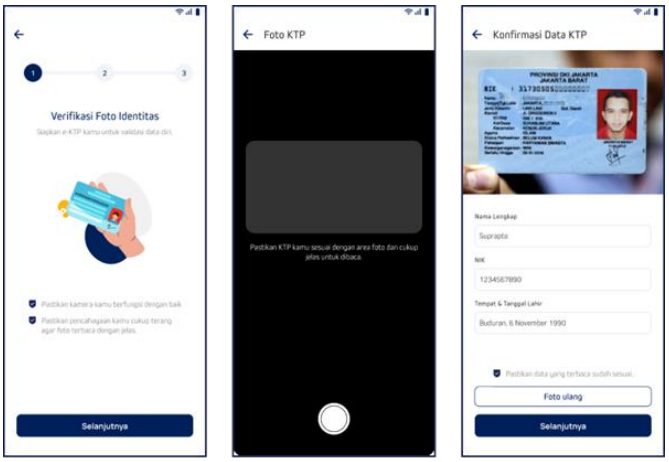
Source: Researcher Data (2024)

- Mockup Fitur Registration

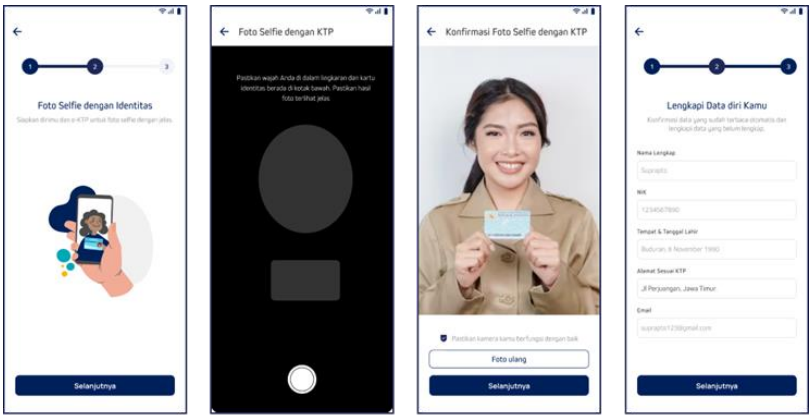




Konfirmasi Pengiriman OTP | Input OTP | Buat PIN Mitra Finpay



Onboarding Foto KTP | Foto KTP | Konfirmasi Data KTP



Onboarding Foto Selfie dengan KTP | Foto Selfie dengan KTP | Konfirmasi Foto Selfie dengan KTP | Form Data Pelengkap

Figure 4. Non-QRIS Finpay Partner Registration Feature Mockup

Source: Researcher Data (2024)

- Mockup Fitur Registration With AI

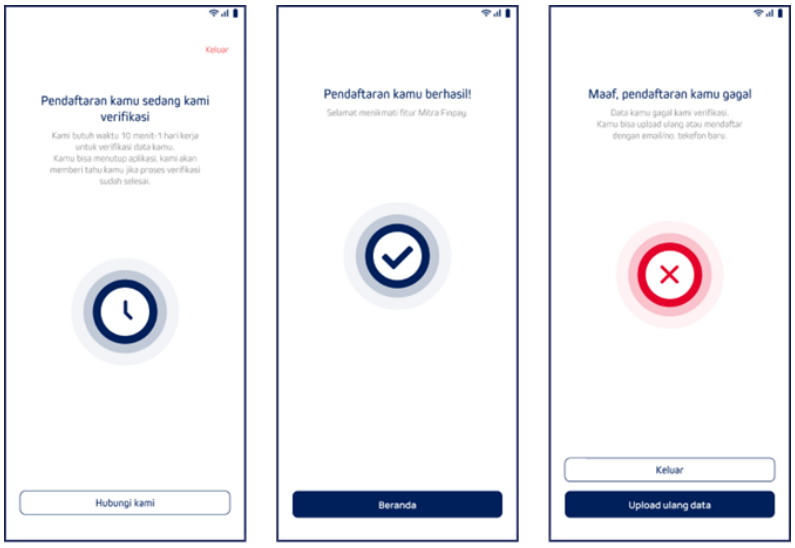


Figure 5. Mockup Registration with AI

Source: Researcher Data (2024)

Test

The next step in this study is to conduct testing on the prototype that has been created. Testing is carried out through a focus group discussion (FGD) with four user informants, as one user was unable to attend the FGD but was willing to try the Figma prototype sent by the researcher and fill out the System Usability Scale (SUS) questionnaire as a reference for the feedback provided to the researcher. During the FGD, the researcher presents a storytelling session about the prototype while users access the prototype through the Figma application provided by the researcher. Once completed, the user informants answer 10 questions from the System Usability Scale (SUS). The researcher also asks for input and suggestions from the informants as a basis for improvements in the development of the Mitra Finpay application.

The data from the answers provided by the informants to the System Usability Scale (SUS) questions are then processed according to the evaluation guidelines. In this stage, the researcher uses three hypotheses: Desirability Hypothesis, Viability Hypothesis, and Feasibility Hypothesis.

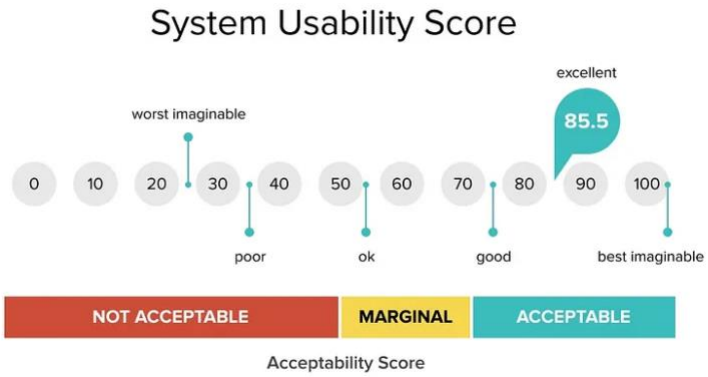


Figure 6. System Usability Score

Source: Researcher Data (2024)

The Desirability Hypothesis is based on users' perceptions of what they desire. The method used to test this hypothesis is storytelling and visual feedback. The SUS Score results from the questionnaire shared with the user informants yielded a score of 86. A score of 86 falls within the "Acceptable" and "Excellent" scale range.

5.0 CONCLUSION

Based on the research results, the primary issues faced by FinPay users, such as a lengthy and complicated registration process and unclear verification status, were identified. To address these main issues, the researcher used design thinking as a tool to solve the problems faced by users. The problem-solving process was illustrated

in the prototype. The prototype developed underwent testing with informants. The results from the prototype testing during the "test" phase, based on usability testing, yielded a score of 86, which is considered acceptable. The informants provided positive feedback on the improvements made in the registration and verification processes. Additionally, the informants offered suggestions that were promptly acted upon, regarding the onboarding page, the personal data completion form, and the non-QRIS dashboard display.

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