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Development of WhatsApp-Based Technology Products Using the Design Thinking Approach : Case Study of Finpay Link at PT Finnet Indonesia

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Abstract. *Finpay Link, developed by PT Finnet Indonesia, is a unique URL generated by the Finpay Payment Gateway system to facilitate payment transactions via email, SMS, or messaging apps like WhatsApp. Designed to simplify transactions for MSMEs, it aims to contribute significantly to the company's revenue through increased business transactions. However, since its launch in 2019, Finpay Link has not met the expected revenue targets, prompting the need for new innovations based on the existing product. Given the high adoption of WhatsApp in Indonesia, with 90.9% of social media users active on the platform, this study explores the design and development of a WhatsApp-based application using the design thinking approach. Aimed at MSMEs, this application is intended to drive business transactions and revenue. This qualitative case study employs observation and in-depth interviews for data collection. The study results include the design of new features like payment processing and transaction history tracking. Prototype testing using the System Usability Score (SUS) yielded an 89.5 score, indicating high usability. Positive feedback from users confirmed the value of the payment and transaction tracking innovations. Despite time limitations, this research provides a foundation for future enhancements and can serve as a reference for applying design thinking in business app development.*

Keywords *Design Thinking, Product Innovation, MSME, Finpay Link, WhatsApp*

1. INTRODUCTION

The quick development of internet utilization in Indonesia has driven the expanded utilize of advanced stages by different sections of society (Prayitno & Khoirunurrofik, 2020). This quickened appropriation of computerized innovation has had an affect on the development of financial exercises, one of which is within the MSME (Micro, Small, and Medium Enterprises) segment (INDEF, 2024). MSMEs are the spine of the national economy since they play a critical part in giving work for the lion's share of the workforce in Indonesia, absorbing approximately 97% of the whole workforce, or around 116 million individuals. Additionally, MSMEs contribute to Indonesia's Gross Domestic Product (GDP) by around 60%, or approximately 8.5 trillion rupiahs every year (Junaidi, 2023). The presence of MSMEs (Micro, Small, and Medium Enterprises) plays a crucial role in the Indonesian economy, influencing even the smallest sectors. Every business, regardless of industry or size, is impacted by digitalization, and all companies must address their strategic direction and create a digital strategy that suits their needs (Sudrajad et al., 2023).

The Service of Cooperatives and MSMEs recorded 67 million MSME performing artists in Indonesia by the conclusion of 2023 (Kominfo, 2022). It tought to be famous that

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this recorded number of MSMEs is an estimate and does not reflect the genuine number of MSMEs. This is often since MSMEs work not as it were within the formal division but too within the casual segment, and the larger part have not enrolled their businesses, making it troublesome to track. Agreeing to the Service of Cooperatives and MSMEs, around 70.2% of MSMEs right now confront challenges in utilizing advanced innovation. These challenges incorporate troubles in getting to capital, accessibility of crude materials, and the challenges of embracing digital technology (Kominfo, 2022).

Address to the challenges and issues said over, the Indonesian Government, through the Service of Exchange and the Service of Communication and Data Technology, proceeds to endeavor to move forward the quality of life for MSMEs by empowering MSME on-screen characters to enter the computerized biological system (Adrian, 2019). Concurring to information from the Service of Communication and Data Innovation, by December 2023, as it were 27 million MSMEs had gone advanced (Kominfo, 2022). This implies that as it were 40% of the overall MSMEs have received computerized innovation. Based on introductory interviews with a few MSMEs, it was found that they favor to conduct trade utilizing the WhatsApp application instead of utilizing commercial center applications such as Shopee, Lazada, Tokopedia, and others. The reason is very basic, WhatsApp is exceptionally user-friendly and simple to get it and utilize. This can be bolstered by information from We Are Social Media (2024), which can be seen in Figure 1.

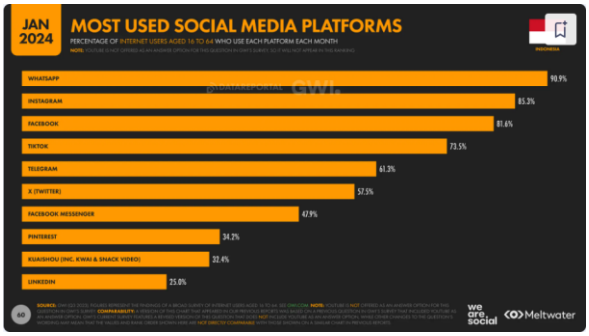

Fig.1 Most Used Social Media Platform

This information appears that social media stages centered on communication and sharing visual substance stay the best choice for the Indonesian open (Zhang, 2023). As a result, the most popular social media stage in Indonesia is WhatsApp, with 90.9% of clients. Instagram takes after in moment put with 85.3% of clients, making it the favorite stage for sharing photographs and recordings in Indonesia. Facebook, in spite of its declining notoriety in a few nations, is still favored in Indonesia with 81.6% of clients. The short-video stage TikTok moreover appears its notoriety with 73.5% of web clients in Indonesia.

Wire, a informing stage known for its security highlights, positions fifth with 61.3% of clients.

WhatsApp is one of the digital products used for messaging and calls, packaged in a simple way that can be accessed for free by anyone around the world (Lailia & Venica, 2023). With the presence of WhatsApp Business, it is expected to ease the digital transformation process for MSME (Micro, Small, and Medium Enterprises) actors (Jamil et al., 2021)), especially MSMEs. However, the presence of the WhatsApp digital platform alone is considered insufficient to support the economic activities of MSMEs (Gita Sari Dewi et al., 2023). Based on informal interviews with MSME business owners, they expressed a desire for a new innovation using the WhatsApp platform. Therefore, WhatsApp should not only be used as a tool for transactions and product negotiations but also as a product showcase and an online payment tool.

From this explanation, there is a need for the redesign and development of the WhatsApp application based on user experience (UX) using a design thinking approach. This aligns with the research conducted by (Zamakhsyari & Fatwanto, 2023), which used the design thinking approach to enhance the user experience of an application. Similar findings were also found in research conducted by (Lailia & Venica, 2023), which attempted to design and develop the WhatsApp application using the design thinking method. One concept that can address this issue is a human-centered approach known as Design Thinking (Hatammimi & Andini, 2022).

According to (Brown, 2019) the design thinking method consists of five stages, which include the following: the first stage is *empathize*, the second stage is *define*, the third stage is *ideate*, the fourth stage comes *prototyping*, and the final stage is *testing*.

The design thinking method emphasizes a collaborative approach, creativity, and conventional thinking in designing relevant and beneficial solutions by combining empathy for users with an exploratory and experimental approach (Foster, 2021). Therefore, the design thinking method allows for the discovery of more innovative solutions that align with the needs of WhatsApp users, most of whom are MSMEs. Based on this, research needs to be conducted on the "Development of WhatsApp-Based Technology Products Using the Design Thinking Approach (Case Study of Finpay Link at PT Finnet Indonesia)."

2. LITERATURE REVIEW

Strategy Management

Strategic management is the science of defining, actualizing, and assessing cross-functional choices that empower an organization to attain its destinations (Alharbi, 2024). Strategic management is an craftsmanship and science within the detailing, usage, and assessment of strategic choices over capacities that permit an organization to realize its future objectives (Taufiqurokhman, 2016). Strategic management could be a framework that, as a entire, comprises of different interconnected components that impact each other and move at the same time toward the same heading (Nawawi, 2005)

In the mean time, (Wheelen & Hunger, 2012) clarify that key management may be a set of choices and activities by management that play a part in deciding the organization's long-term activities. The most objective of strategic management is to abuse and make modern and particular openings for long-term of an organization. The strategic management handle can be examined and connected employing a comprehensive show, as appeared in Figure 2.

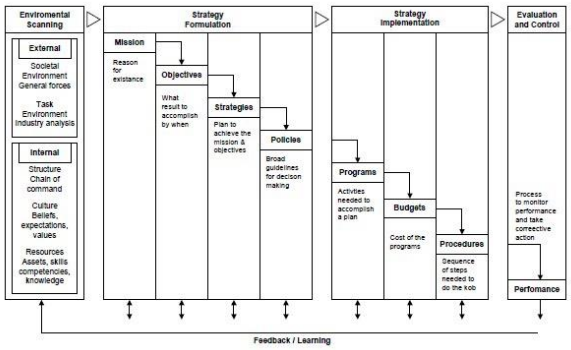

Fig. 2 Management Strategic Model

Concurring to (Wheelen & Hunger, 2012), strategic management comprises of four essential components:

a. Environmental Scanning: The method of observing and assessing both inside and outside data, frequently utilizing SWOT examination to recognize strengths, weaknesses, opportunities, and threats.
b. Strategy Formulation: The improvement of long-term plans to capitalize on openings and address threats, considering the organization's strengths and weaknesses.
c. Strategy Implementation: The method of applying the methodology through programs, budgets, and strategies, counting changes in culture, structure, and management systems.

d. Strategy Evaluation: The method of checking the organization's advance and comparing it with beginning objectives, to create enhancements and distinguish shortcomings.

Digital Technology

Agreeing to (Rippa & Secundo, 2019), advanced innovation is isolated into three parts: Digital Artifact, Digital Platform, and Digital Infrastructure. Digital Artifact is characterized as a computerized component, application, or media substance that's portion of a unused item (or benefit) and offers particular usefulness or esteem to the end-user. Digital Platform is characterized as a set of services and structures that give center usefulness shared by various modules, in conjunction with an interface for interaction, made through an extensible software codebase and utilized to meet the requirements of differing clients in an effective way.

Concurring to (Rippa & Secundo, 2019), digital platforms offer significant opportunities for enterprise by creating complementary items and administrations. The taking after is the typology of advanced stages:

a. Intelligent Apps: Applications that work as colleagues to encourage human exercises, making them more efficient and effective.
b. Mesh App and Service Architecture (MASA): Empowers the utilize of applications that optimize the stage with a steady see over different channels (e.g., desktop and smartphone).
c. Huge Information and Learning Analytics: Huge information alludes to huge and unstructured information, whereas enormous information analytics includes utilizing calculations to extricate valuable designs and data.
d. Cloud Computing: Internet-based computing that gives shared assets and information handling to gadgets on request.
e. 5. Social Media: Computer-based innovation that encourages the creation and sharing of data, thoughts, career interface, and other expressions through virtual systems.

Design Thinking

Design Thinking could be a strategy within the plan handle that centers on clients to solve issues from diverse viewpoints. This approach permits for finding the correct arrangements through understanding the issues and obstacles within the design process (Ambrose & Harris, 2010). Concurring to (Brown, 2019), design thinking may be a human-centered approach that coordinating client needs, innovative conceivable outcomes, and commerce necessities. The plan prepare has advanced with the point of making thoughts

that are arranged towards users' needs and wants. (Kumar & Kurni, 2022) clarify four crucial standards of Design Thinking:

a. The Human Rule: Design Thinking centers on people in each setting and movement attempted.
b. The Ambiguity Rule: It opens space for equivocalness, permitting understanding from different points of view.
c. The Redesign Rule: Emphasizes the significance of overhauling what as of now exists to attain the specified comes about.
d. The Tangible Rule: The plan must be genuine or substantial, with prototyping to appear a concrete plan to clients.

These standards guarantee that the Design Thinking handle produces more imaginative, viable, and profitable arrangements. The concept of design thinking can view in figure 3.

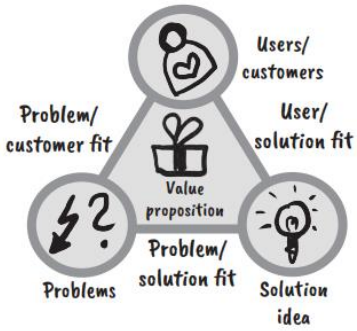

Fig 3. Concept of Design Thinking

Figure 3 illustrates the working mechanism of design thinking. Essentially, design thinking must be able to align the problem with the customer, the problem with the solution, and the solution with the customer. With alignment across these three areas, a value proposition can be achieved. Design thinking solves complex problems by making them clear, allowing for analysis and resolution. The mindset of design thinking should be integrated into the entire process, starting from using the consumer's perspective to creating a new culture within the company. The general flow of the design thinking process is carried out through 5 stages. Figure 4 presents the flow of the 5-stage design thinking process.

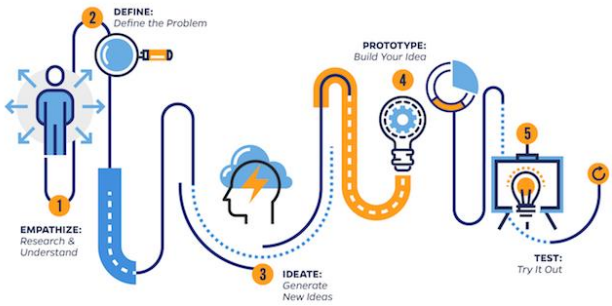

Fig. 4 Design Thinking Process

The Design Thinking process consists of five stages according to (Kumar & Kurni, 2022), as follows:

a. Empathize: Researchers focus on understanding the needs and desires of potential users, including their psychological and emotional aspects. Researchers must set aside assumptions to obtain objective results. Tools used include Persona and Stakeholder Map.
b. Define: Data collected during the empathy stage is summarized and analyzed to conclude the problems faced by users, with the user's perspective as the main focus. Tools used include Userforge or Samply.
c. Ideate: Researchers explore potential solutions to the problems faced by developing creative ideas. Methods used include brainstorming, mind mapping, and role play. Tools such as Whiteboard Apps, Miro (Mural), or Ideaflip can be used.
d. Prototype: The potential solutions chosen from the ideation stage are created in the form of more tangible and perceptible models. This stage allows for improvements to enhance the quality of the solution. Tools used include Boords, Mockingbird, or POP.
e. Test: Researchers gather feedback from users, which is then used to improve the model. After receiving feedback, the solution is retested and refined. Tools used include usertesting.com, Hotjar, or Pingpong.

3. METHODS

Research can be categorized into three types based on its methodology there are quantitative, qualitative, and mixed methods. This study utilizes a qualitative method. Concurring to (Creswell, 2014), qualitative research may be a logical handle pointed at understanding human issues inside a social setting by making a holistic and complex depiction. It presents detailed views from sources and is conducted in characteristic settings without any mediation from the analyst. This study receives a subjective exploratory

approach, which, agreeing to (Sekaran & Bougie, 2016) is utilized when there's restricted information or data accessible almost the subject being examined.

In terms of methodology, investigate can be separated into four sorts there are experimental, survey, case study, and ethnography. This study uses the case study strategy, which includes completely examining a particular issue by collecting comprehensive data through different information collection strategies. Furthermore, ethnography is depicted as a research procedure where the researcher observes, records, and participates in the daily lives of another culture and subsequently writes a report on that cult This study focuses on Finpay users, specifically Micro, Small, and Medium Enterprises (MSMEs). The respondents in this research are divided into two groups: internal and external respondents.

a. Internal Respondents consist of experts or academics in the field of MSME economics, GHO Squad Leaders of Finpay Link, and Finpay Link Squad Officers.
b. External Respondents include MSME owners and MSME mentors.

The research involves collecting data through interviews with the identified respondents (Sekaran & Bougie, 2016). In this study, the operational variable related to Design Thinking is adopted from (Brown, 2019). 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 is adopted to integrate the needs of users, technological possibilities, and the requirements for business success." (Brown, 2019)					
1	***Emphatize*** *"At this stage, the researcher focuses on identifying and understanding the desires or needs of potential users."*(Kumar & Kurni, 2022)	**Awareness** As a Finpay Link user, I was initially drawn to the service after learning about it through recommendations from other business owners. Before committing to Finpay Link, I considered other similar payment solutions, but factors such as ease of use, cost-efficiency, and specific features like seamless integration with WhatsApp convinced me to try it. Though I had some concerns about the service's reliability, I found that these were quickly addressed through helpful customer support. Compared to other services, Finpay Link offers competitive fees and added value through its convenience and feature set. Positive feedback from other users also reinforced	User Informant (MSMEs)	Photo and video documentation of the interview process.	1) The informant provides information about the current challenges faced by MSMEs. 2) The informant provides information about the current needs of MSMEs. 3) The informant

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
		my decision. Overall, I appreciate its user-friendly interface and integration capabilities, though I believe some areas, such as expanding the reporting features, could still be improved. **Consideration** I decided to try Finpay Link after hearing positive recommendations from fellow business owners, particularly regarding its ease of use and unique integration with WhatsApp. Before choosing it, I considered other digital payment solutions, but Finpay Link stood out because of its cost-effectiveness, simple interface, and seamless integration with tools I already use. The features I found most appealing were its fast transaction processing and the ability to handle payments directly through WhatsApp, which made it incredibly convenient for my business. Initially, I had concerns about its reliability, but after using it and receiving solid customer support, I became confident in the service. In terms of fees, I found them competitive, and considering the benefits of convenience and integrated features, I feel the costs are justified. **Acquisition** The enrollment and account activation process for Finpay Link was fairly straightforward, though I did encounter some minor challenges during the initial setup, particularly with linking my business accounts. However, I overcame these by referring to the help guides and reaching out to customer support. In terms of finding guidance, I found the information available to be somewhat scattered, so improving accessibility or providing a more structured, centralized help section could be beneficial for new users. The integration process with my business was clear for the most part, though there were a few confusing steps, particularly with syncing some third-party tools, which affected the overall			provides information about the applications frequently used to support their ongoing business.

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
		experience. The support team was responsive and provided helpful assistance during both the registration and integration stages, which made the process smoother. I learned how to access and use Finpay Link's features mainly through hands-on experience and the available guides. The most helpful features for my business have been the transaction management and payment processing tools, which have significantly supported my business operations. **Service** Using Finpay Link for daily transactions has generally been a smooth and efficient experience. The process is easy to navigate, and the platform is convenient for handling payment and business transactions, offering a good level of comfort. However, I did encounter a few technical issues, such as occasional connection disruptions and transaction delays, which affected my overall experience. Despite these challenges, the support team was quick to respond and provided effective solutions, although there's still some room for improvement in terms of speed and comprehensiveness of their customer service. I believe the platform could benefit from additional features, such as better reporting tools or automated reconciliation options, to further streamline business operations. In terms of tracking and managing transactions, the app interface is relatively intuitive, and I can easily monitor the status of transactions and manage payment histories, though there's potential for more detailed tracking capabilities to enhance the overall user experience. **Loyalty** Using Finpay Link has greatly benefited my business operations by providing significant ease and efficiency in managing daily transactions. The service			

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
		streamlines payment and receipt processes, making transactions faster and reducing the need for manual intervention. This has significantly impacted the flow of transactions, accelerating payments and reducing administrative burdens. I would definitely recommend Finpay Link to business partners or friends, as it offers clear advantages in terms of convenience, ease of use, and improved transaction management. To improve my satisfaction and loyalty, I believe additional features such as better reporting tools or enhanced customer support could further streamline my experience. While I have not considered switching to another payment service, the main factors that could influence such a decision would be price, the availability of additional features, and overall service quality. **Service Innovation** I frequently use WhatsApp in my daily business operations for communication with customers and suppliers, as well as for managing transactions. I believe there is a need for features that can simplify business transactions through WhatsApp, such as automatic payment confirmation, transaction tracking, and better integration with other systems. The integration of Finpay Link with WhatsApp could significantly streamline my business operations, making transactions more efficient and easier to manage. One of the challenges I face is tracking transactions, and the integration could help resolve this by providing real-time updates. I feel more comfortable and secure making transactions on WhatsApp compared to other platforms due to its familiarity and security features. Having easy access to transaction reports via WhatsApp would improve my financial management, as I currently manage reports manually. Fast and effective technical support is crucial, and I expect			

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
		Finpay Link's WhatsApp integration to continue evolving to better support my business growth with improved features and ease of use.			
2	***Define*** "*At this stage, the data obtained in the empathize phase is collected and then critically summarized ."* (Kumar & Kurni, 2022)	Finpay Link has effectively streamlined payment transactions for MSMEs, improving business growth by simplifying processes and providing easy access to digital payment solutions. However, challenges like technical difficulties, integration issues, and resource constraints remain. Feedback has been positive, with requests for improvements in transaction speed, user interface, and additional features like automated financial reporting. The integration with WhatsApp is seen as an opportunity to enhance transaction ease. MSMEs benefit from Finpay Link by saving time, reducing costs, and speeding up transactions, with the service improving access to digital payment technologies. To further support MSMEs, features like financial reporting, accounting integration, and POS system compatibility are suggested, along with a focus on education and training for better adoption.	Key Informant (Small and Medium Enterprises - MSMEs)	Photo and video documentation of the interview process.	The informant explains the features needed in the WhatsApp application.
3	***Ideate*** *"At this stage, the researcher attempts to identify potential solutions to address the complex problems encountered* ".(Kumar & Kurni, 2022)	How can we assist MSMEs in ensuring that the payment process using Finpay Link runs smoothly and securely to support the effectiveness of their business operations?	Supporting Informant (Finpay Link)	Dokumentasi foto dan video proses wawancara	The informant shares ideas regarding the development process of the Finpay Link feature on the WhatsApp application.
4	***Prototype*** *"In the prototype stage, the solution is*	How does the company define and design the Finpay Link feature prototype on the WhatsApp application to meet the needs of MSMEs?	Supporting Informant (Finpay Link)	Photo and video documentation of the	The informant describes the process of creating the Finpay Link

No	Operational Definition	Interview Question	Respondent	Supporting Evidence	Output
	made more tangible, allowing its processes or outcomes to be experienced." (Kumar & Kurni, 2022)			interview process.	feature prototype on the WhatsApp application.
5	***Test*** *"At this stage, the researcher will gather feedback, which will later be considered for improvements."* (Kumar & Kurni, 2022)	What is the user feedback on the development of the Finpay Link service through the WhatsApp application?	Key Informant (Small and Medium Enterprises - MSMEs)	Photo and video documentation of the interview process.	The informant provides information regarding their satisfaction with the Finpay Link feature available on the WhatsApp application. The informant also offers suggestions in case there are any shortcomings in the Finpay Link feature on the WhatsApp application.

4. RESULTS

The researcher collected information by conducting interviews with eight respondents included in this study. Respondents were chosen based on their association within the utilize and advancement of the Finpay Interface application. The think about embraced a design thinking approach for the development of the Finpay Connect application. This approach comprises five stages empathize, define, ideate, prototype, and test.

Empathize

In the empathize phase, the researcher collects data through interviews and documentation. The researcher conducts in-depth interviews to gather as much information as possible from all informants. The interview results from the user informants are then

reduced by summarizing the responses from each user informant. The summary of the data reduction can be found in the appendices, which are an integral part of this research. From this summary, the researcher creates a user journey map with the goal of summarizing what users do when using the Finpay Link application, so that a deeper understanding of how users interact with the application can be achieved.

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.

a. 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 the Figure 5.

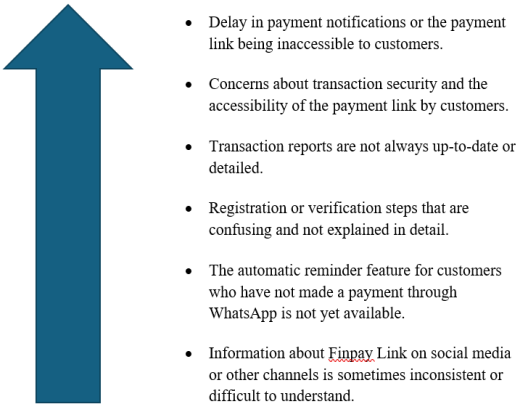

Fig 5. Problem Prioritization

Based on the potential risks that may arise if not addressed promptly, the primary focus should be placed on notification delays, payment link accessibility, and transaction security, as these issues directly impact customer experience and may affect cash flow and trust in the system. Resolving these issues should be a top priority to maintain the continuity and credibility of Finpay Link among SME users.

b. Jobs to Be Done (JBTD)

After identifying the priority issues mentioned above, the researcher then creates a Jobs to Be Done (JBTD) framework. JBTD is a framework that helps developers understand why and how users purchase or use a product.

c. Point of View and How Might We (HMW)

Table 2. Point of View and How Might We

Insight	Needs	Point of View (POV)	How Might We (HMW)
Small business owners experience delays in receiving payment notifications or customers are unable to access payment links. This leads to delays in processing orders and disrupts the cash flow of the business. If this issue is not addressed promptly, customers may lose trust in the service, which could negatively impact the business's reputation.	Small business owners need a payment system that can send real-time payment notifications and ensure that payment links are always easily accessible and secure for customers.	A small business owner who wants to ensure smooth transactions with customers, with notifications received in real-time and payment links that can be accessed without any issues, so that the business can operate more efficiently and customers remain satisfied.	How can we assist SMEs in ensuring that the payment process using Finpay Link runs smoothly and securely to support the effectiveness of their business operations?

Ideate

Ideate is the method of producing as numerous thoughts as conceivable to solve the issues identified within the empathize and define stages. The most objective of ideate is to investigate a assortment of inventive and out-of-the-box arrangements. The more thoughts created, the more noteworthy the probability of finding innovative and effective solutions**.**

After conducting Dot Voting in the Ideate phase, three main categories emerged: security and constraints, payment automation, and UI/UX. In the security and constraints category, the informants wanted a secure payment link, OTP for payments, and two-factor authentication to ensure transaction security and increase user trust. In the payment automation category, the informants proposed automatic payment reminders, invoice scheduling, automatic re-sending of invoices, and personalized payment links, all aimed at reducing administrative burdens for users. In the UI/UX category, the ideas that emerged included direct payment via WhatsApp, automatic ChatBot, payment history in WhatsApp, payment link tracking, and integration with online stores, all intended to improve efficiency and user convenience. After the ideation polling, the two major ideas selected were direct payment via WhatsApp and payment history in WhatsApp, which are expected to provide added value for SMEs in managing their payments and business operations.

Prototype

After going through the ideate phase, a high-fidelity prototype was created using Figma. In this research, coordination and collaboration with developers were carried out in

the creation of the prototype, implementing the ideas generated during the ideation phase, which had been confirmed by users. Below is the prototype in this study.

a. Payment Process Feature via WhatsApp

This feature was developed to meet the users' expectations of enabling payment processes to be accessed through the WhatsApp application. The initial user interface (UI) of WhatsApp can be seen in Figure 6.

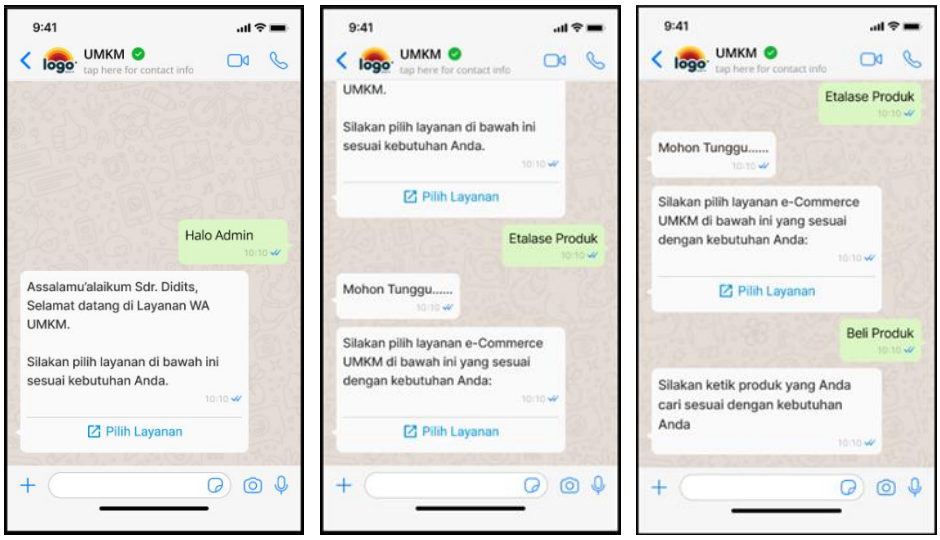

Fig. 6 Initial UI Display of WhatsApp Chatbot

b. Transaction History Feature via WhatsApp

This feature was developed to meet users' expectations of having access to payment history directly through WhatsApp. The initial user interface (UI) of this feature is similar to the previous one. The difference lies in the fact that users select "Transaction History" from the service menu. The chatbot will then automatically redirect the user to the Finpay website to view a complete transaction history. The mockup display can be seen in Figure 7.

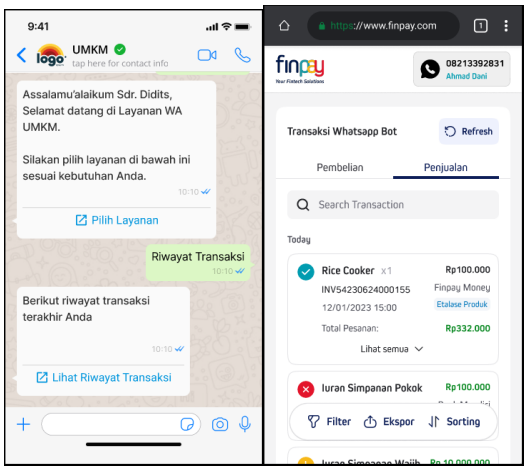

Fig.7 Transaction History Menu Interface

Testing

The another step in this study is to conduct testing on the model that has been designed. The testing is performed using usability testing on the model arranged within the Figma application. The testing was conducted with 5 (five) members. The testing was carried out by the analyst with the client members utilizing the FGD method. After the FGD was completed, the client members were given 10 questions from the System Usability Scale (SUS). The System Usability Scale (SUS) could be a straightforward 10-item scale that gives a worldwide see of subjective assessments of convenience (Brooke, 1996). The responses from the informants to the System Usability Scale (SUS) questions are then analyzed based on the evaluation criteria. At this stage, the researcher applies three hypotheses: the Desirability Hypothesis, the Viability Hypothesis, and the Feasibility Hypothesis. The Desirability Hypothesis is grounded in users' perceptions of their preferences. To test this hypothesis, storytelling and visual feedback are utilized. The SUS Score obtained from the questionnaire distributed to the user informants resulted in a score of 89.5, which falls within the "Acceptable" to "Excellent" range.

5. DISCUSSION

Discussion Empathize Stage

In the empathize phase, the researcher conducted interviews with eight sources, consisting of five users and three developers and experts. The results of the interviews with users were analyzed using a user journey map, which revealed comfort in using WhatsApp to send payment links and transaction information, despite challenges such as delays in invoice and notification delivery, as well as concerns about data security and privacy. These findings are in line with research by (Lailia & Venica, 2023), which used WhatsApp as a medium to address these issues. The interviews with developers and experts were analyzed using an empathy map, which highlighted resource limitations that hindered the development of the application, as well as developers' frustrations with repetitive manual tasks. The expert sources believe that Finpay Link can offer significant benefits for MSMEs but requires further user education, consistent with the findings of (Rachman et al., 2023) regarding the importance of a deeper understanding of users' problems and needs.

Discussion Define Stage

In the define phase, the researcher employed a 2x2 matrix method to map the issues identified during the empathize phase. The analysis revealed several problems in the high value, low effort category, such as notification delays, transaction security issues, payment

link accessibility, transaction reports not being updated regularly, the lack of an automatic reminder feature, and inconsistent information on social media. The main priority is to address the notification and payment link accessibility issues to maintain customer experience and cash flow. This aligns with the research by (Chasapis et al., 2023), which emphasizes the importance of understanding user problems in application development. The researcher also used the Jobs to Be Done (JBTD) technique, as outlined by (Ribeiro et al., 2019), to identify value opportunities for customers and to formulate a Point of View (POV) and problems in the form of "How Might We" (HMW), leading to innovative solutions (Destriani & Heroza, 2023). The formulated HMW question was: "How can we help MSMEs ensure that the payment process using Finpay Link runs smoothly and securely to support the effectiveness of their business processes?"

Discussion Ideate Stage

In the ideate phase, methods such as brainstorming, categorizing, and dot voting were employed. During brainstorming, the brainwriting technique was applied, as suggested by (Litcanu et al., 2015), who described brainwriting as an alternative to traditional brainstorming. From the ideation session, 30 ideas were generated and then grouped into three categories: security and reliability, payment management automation, and UI/UX. These categories were chosen to address issues within the Finpay Link service, focusing on ensuring smooth and secure payments for MSMEs. In the dot voting phase, participants selected the ideas that best aligned with user needs, following (Dalton, 2018) recommendation of dot voting as a rapid selection technique. The ideate phase resulted in two main ideas: direct payments via WhatsApp and transaction history tracking within WhatsApp, which served as the foundation for prototype development. This process aimed to find creative solutions, as emphasized by (Ghina & Afifah, 2021), who highlighted the importance of digitally-based creative ideas in solving user problems.

Discussion Prototype Stage

In this phase, the prototype was created using the Figma application, with coordination between the researcher and developer to implement the ideas generated from the ideation phase, which had been confirmed by the users. The prototype focuses on two main features: direct payment via WhatsApp and transaction tracking via WhatsApp. In the direct payment feature, users can choose between two options: clicking on the choice provided by the chatbot or typing the word requested by the chatbot. Users will select a product, enter the delivery address, choose the shipping service, select the payment method, and finally be able to track the product's location after shipment. The transaction tracking

feature allows users to view the complete transaction history via WhatsApp, which directs them to the Finpay website. Both features were designed according to user expectations, aiming to simplify MSME operators' use of Finpay Link. This aligns with research by (Chasapis et al., 2023) which emphasizes the importance of user feedback in the development of application prototypes.

Discussion Test Stage

The next phase of this study is the prototype testing through a focus group discussion (FGD) with user respondents. During the FGD, the researcher explained the prototype that had been developed and provided an opportunity for the users to try out the prototype through the Figma application. Afterward, the respondents were asked to fill out the System Usability Scale (SUS) questionnaire and provide feedback for improving the Finpay Link service. The results from the SUS questionnaire, which scored 89.5, indicate that the prototype falls within the "Acceptable" and "Excellent" categories. To test three hypotheses—Desirability, Viability, and Feasibility—methods such as storytelling, visual feedback, user interviews, and scenario-based estimation analysis were employed. The results of the testing show that the payment feature via WhatsApp can expedite transactions and contribute to a 10-transaction increase in daily transactions. Additionally, the testing revealed that users clearly understood the payment steps and transaction history tracking, and they gave positive assessments regarding the flow and design of the features.

6. CONCLUSION

The conclusion of this study highlights the successful application of the design thinking approach in identifying and addressing key challenges faced by SMEs in using the Finpay Link digital platform, including delays in payment notifications, accessibility issues with payment links, and concerns regarding transaction security. The solution developed, integrating Finpay Link with WhatsApp, proved effective, as demonstrated by the prototype testing results, which received a high usability score of 89.5, indicating that the innovation was both "acceptable" and "excellent." Respondents provided positive feedback regarding improvements in the payment process and transaction tracking.

This research offers valuable qualitative guidance for the development of business applications using the design thinking approach. However, due to time and resource constraints, this study did not fully explore the iterative nature of design thinking. Future research could build upon this by introducing additional features beneficial for SME

development. Furthermore, methods like Root Cause Analysis (RCA) could be incorporated in future studies to deepen the understanding of user challenges.

Output from this research for PT Finnet Indonesia, the study suggests immediate action in addressing the identified user problems. A practical step would be to allocate resources and assemble a development team to enhance the payment and transaction tracking features within the WhatsApp-based Finpay Link service. This enhancement is expected to significantly improve user satisfaction and contribute to increased revenue, benefiting both users and the company.

7. LIMITATION

This study has several limitations that should be considered. First, the design thinking approach used in this research was not iterative due to the limited time and resources available. Therefore, the study only identified and addressed the main issues without developing additional features or conducting repeated testing. Second, the research relied solely on one approach to gather information about the problems faced by SMEs. In the future, the inclusion of other methods, such as Root Cause Analysis (RCA), could enrich the understanding of the challenges faced by users. Lastly, this study focused more on practical solutions for the development of the Finpay Link application without considering more in-depth technical aspects related to the implementation and long-term maintenance of the proposed solution.

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