

Lapak Jeneponto: Designing an Inclusive Mobile Marketplace UI for MSMEs in Rural Indonesia

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Abstract

Jeneponto Regency's MSMEs face significant challenges accessing wider markets despite their economic potential. This research designed a User Interface (UI) for a mobile marketplace application ("Lapak Jeneponto") to enhance product visibility and market reach for local MSMEs. Using the Google Design Sprint methodology, we identified key user needs, generated features, created prototypes, and validated designs with 15 participants representing both MSME owners and potential customers. The prototype features product catalog, shopping cart, and payment functionality addressing four identified challenges: limited market information, low product visibility, restricted customer base, and inadequate digital literacy. Validation testing revealed strong preferences (92%) for Indonesian language interfaces, high task completion rates (87%), and demand for Cash on Delivery payment options. The resulting user-friendly interface accommodates varying digital literacy levels and aims to unlock growth opportunities for local businesses, contributing to regional economic development.

Keywords: user interface (UI), MSMEs, Google Design Sprint, mobile marketplace

INTRODUCTION

The development of information and communication technology, particularly in the mobile device and internet connectivity sectors, has transformed the way businesses operate worldwide (Harto et al., 2023). One of the most notable trends is the rapid growth of e-commerce and mobile-based marketplace businesses (Priyono & Sari, 2023). According to the Indonesian E-commerce Association (idEA), e-commerce transactions in Indonesia reached USD 32 billion in 2022, a significant increase from USD 8 billion in 2017. The number of e-commerce users in the country also grew from

139 million in 2017 to 193 million in 2022 (Adoe et al., 2022). This rapid growth highlights the increasing importance of online marketplaces for businesses, including MSMEs, to reach wider markets and stay competitive.

Jenepono Regency, situated in South Sulawesi Province, holds significant potential in the MSME sector (Saparuddin M & Bado, 2011). According to data from the Government of Jenepono Regency, the number of MSMEs in Jenepono reached 12,474 business units in 2022. These MSMEs absorb a workforce of 30,128 people in Jenepono. The trade sector dominates the MSMEs in Jenepono with a percentage of 60.48%, followed by the manufacturing industry sector at 33.15% (Website Resmi Pemerintah Kabupaten Jenepono, 2023). These numbers underline the vital role of MSMEs in creating local employment opportunities and boosting community income in Jenepono Regency. However, many MSMEs in this area, approximately 60%, still face major challenges in accessing larger markets and enhancing the visibility of their products (RAHUL et al., 2022).

Similar to other regions in Indonesia, Jenepono Regency has experienced significant growth in mobile device usage and internet access. This growth has opened up substantial opportunities to develop mobile-based marketplace applications that can assist MSMEs in Jenepono in overcoming these challenges.

To address the hurdles faced by MSMEs in Jenepono Regency, there is a need for the design of mobile-based marketplace applications that cater to local needs. Data from the Indonesian Ministry of Cooperatives and SMEs shows that in 2022, 80% of MSME owners in Indonesia use mobile devices as their primary channel for business operations and marketing (Priyono & Sari, 2023). Furthermore, a survey by Google and Temasek found that 65% of online shoppers in Indonesia prefer to use mobile apps over mobile websites when making purchases (Adoe et al., 2022). These statistics underline the critical need for MSMEs in Jenepono to develop mobile-based marketplace applications to effectively reach and engage with their target customers.

Numerous studies have identified user interface (UI) design as a significant factor impacting the success and adoption of mobile applications. A study by Rianingtyas and Wardani (Rianingtyas & Wardani, 2019) found that 72% of MSMEs in the tourism sector cited poor UI design as a major barrier to effectively promoting and selling their products online. Similarly, Firdausi (Firdausi, 2021) determined that 68% of users reported difficulty navigating the UI of the Digidesa application, leading to low engagement and limited effectiveness.

Poor UI design, including complex navigation, unintuitive layouts, and lack of visual appeal, can create significant barriers for users, leading to low engagement, high abandonment rates, and ultimately, limited effectiveness of the application (Norman, 2013). This is particularly critical for MSME-focused mobile marketplace applications, where the user experience must cater to the needs and capabilities of both merchant sellers and end-customers in order to facilitate seamless transactions and enhance the visibility of local products.

These applications should feature user-friendly interfaces (UI) that are easy to navigate for both MSME owners and customers. A study by Dewi et al (Dewi et al., 2022) found that 77% of MSME owners reported that the poor UI/UX of the “Product UMKM Online” website hindered their ability to effectively market and sell their products online. Ensuring a well-designed, intuitive UI is crucial for the success of mobile-based marketplace applications targeting MSMEs in Jeneponto.

These previous studies serve as references indicating that UI/UX design for mobile applications needs to be tailored to the specific context and characteristics of users for easy usability. Direct user input is also crucial to ensure that the resulting UI meets their expectations and needs.

This research aims to design the User Interface (UI) of a mobile-based marketplace application that will help MSMEs in Jeneponto Regency enhance the visibility and accessibility of their products, as well as expand their market share. With appropriate UI design, it is expected that this application will provide significant benefits to MSMEs and the local economy.

Based on discussions with representatives from the Department of Cooperatives and MSMEs of Jeneponto Regency, as well as interviews with local MSME practitioners, it was identified that a key challenge faced by MSMEs in the region is the lack of market information access to effectively market their products beyond the local area (RAHUL et al., 2022; Saparuddin M & Bado, 2011). Additionally, the majority of MSME owners in Jeneponto, around 70%, have limited proficiency in using digital technologies for business operations (Website Resmi Pemerintah Kabupaten Jeneponto, 2023). Therefore, the UI design of the mobile marketplace application must prioritize enhancing the visibility of MSME products and ensure an intuitive, user-friendly interface that is easily navigable by both merchant sellers and end-customers with varying digital literacy levels.

The focus on enhancing visibility and accessibility aligns with previous studies on UI/UX design for MSME-focused mobile applications. Rianingtyas and Wardani (Rianingtyas & Wardani, 2019) emphasized that poor UI design, which limits product visibility and accessibility, was a major barrier for MSMEs in the tourism sector to effectively promote and sell their offerings online. Similarly, Dewi et al (Dewi et al., 2022) found that the suboptimal UI/UX of the “Product UMKM Online” website hindered MSMEs' ability to market their products effectively, underscoring the importance of user-friendly interfaces that prioritize visibility and accessibility.

By designing a mobile marketplace application with a focus on enhancing the visibility and accessibility of MSME products in Jeneponto, this research aims to address the key challenges faced by local entrepreneurs and unlock new opportunities for growth and expansion of their businesses, ultimately contributing to the development of the regional economy.

This research is grounded in an understanding of the crucial role of MSMEs in the economy of Jeneponto Regency and the opportunities presented by mobile technology development. With the right UI design, it is anticipated that the mobile-based marketplace application can make a significant contribution to enhancing the welfare of MSMEs and fostering local economic growth.

METHODS

This research was conducted in Makassar City for approximately 6 months. The research method employed was the Google Design Sprint method (Knapp et al., 2016), consisting of 5 stages as shown in Figure 1 below:

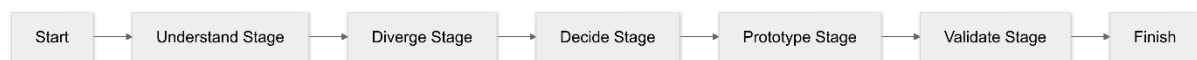


Figure 1. Research Flow Diagram

Stage 1: Understand Stage

During this stage, internal team discussions were held to determine the long-term goal of the research, which is to design the UI of the marketplace application for MSMEs in Jeneponto. Additionally, we identified personas or representations of potential users of the application along with their needs, as well as the main issues to be addressed. For this stage, we conducted in-depth interviews with 15 participants, comprising 10 MSME owners and 5 potential application users from Jeneponto Regency. Participants were selected using purposive sampling to ensure representation across different business sectors (food & beverage, cosmetics & fashion, household items) and varying levels of digital literacy.

Stage 2: Diverge Stage

The team conducted brainstorming sessions to generate features and application solutions using the How Might We (HMW) method, which involves posing questions like “How might we...?” related to each identified problem. User flows, or the interaction pathways users would take to accomplish their goals within the application, were then created. This stage involved 8 team members with backgrounds in UI/UX design, software engineering, and business development.

Stage 3: Decide Stage

During this stage, wireframe sketches or blueprints of the application interface were created based on the identified features. Design research was also conducted to gather inspiration to ensure that the prototype created is engaging. The design was scripted into task scenarios, outlining the steps users would take to use the features. These wireframes were evaluated by 5 expert reviewers with experience in mobile application development for MSMEs.

Stage 4: Prototype Stage

The team implemented the wireframes into a visual prototype of the application with detailed features and designs (high-fidelity prototype) using the Figma tool. The prototype development followed mobile-first design principles and incorporated feedback from the previous stages.

Stage 5: Validate Stage

The prototype was then tested with 15 users (10 MSME owners and 5 potential customers) to gather feedback and evaluations regarding the usefulness and ease of use of the application design. Participants for the validation stage were selected using stratified random sampling to ensure representation across different age groups (25-55 years), education levels, and digital literacy levels. The validation process included task completion tests, semi-structured interviews, and a standardized System Usability Scale (SUS) questionnaire to measure user satisfaction.

Through these 5 stages of the design sprint method, it is hoped that a user-friendly UI design for the mobile marketplace application will be produced, meeting the expectations of both MSMEs and buyers.

RESULTS AND DISCUSSION

The result of designing the UI of the mobile-based marketplace application for MSMEs in Jeneponto Regency using the Google Design Sprint method is as follows:

The first stage is the understand stage. In this stage, in-depth discussions and interviews were conducted with 15 participants. Based on the discussions, it was understood that MSMEs in Jeneponto face several challenges in marketing their products. The main challenge identified, is the lack of market information access for local MSMEs to market their products widely, especially to the national market through online marketplaces. Therefore, there is a need for a specific mobile marketplace that can bridge the gap for MSMEs in Jeneponto to market their various products to a wider audience.

After understanding the challenges faced by MSMEs in Jeneponto, the research team proceeded to the diverge stage to explore what features are needed in this mobile marketplace application. Based on the in-depth interviews, the key challenges faced by MSMEs in Jeneponto were identified as follows:

1. Lack of market information access:
 - a. The participants cited this as the main challenge faced by local MSMEs.
 - b. MSMEs have limited ability to access information about larger markets, especially the national market, to sell their products.
2. Low product visibility:

- a. The participants mentioned that their products have low visibility, especially outside the local area.
 - b. Lack of effective online marketing channels and platforms hinders MSMEs from showcasing their products to a wider audience.
3. Difficulty in expanding customer base:
 - a. The participants noted that MSMEs struggle to expand their customer base beyond the local community.
 - b. Limited reach and accessibility of MSME products to potential customers in other regions is a significant barrier.
4. Inadequate digital literacy among MSME owners:
 - a. The participants acknowledged that they have limited proficiency in utilizing digital technologies for business operations and marketing.
 - b. This lack of digital skills inhibits MSMEs from effectively leveraging online platforms to promote and sell their products.

Based on these key challenges, the research team generated feature ideas for the mobile marketplace application, including product search, product catalog, shopping cart, payment, shipping, and product reviews. These features aim to address the issues of market information access, product visibility, customer base expansion, and digital literacy faced by MSMEs in Jeneponto.

From the numerous feature ideas generated, the next step was to select the core features to be developed in the decide stage. The main features selected were the MSME product catalog, shopping cart, and payment. The main reason for selecting these three features is that they are integral parts required for any marketplace for the buying and selling transactions to take place.

After determining the core features to be developed, the next stage was the prototype stage, involving the creation of a prototype using the mobile-first design principle. The prototype was created using the Figma software. Here is a brief explanation of the designed UI prototype.

The main page plays a vital role in directing users' attention and encouraging them to actively engage in buying and selling activities on Lapak Jeneponto.

Before entering the main page, users are greeted with a splash screen as the opening page that appears the first time the Lapak Jeneponto application is launched.

The splash screen displays the name “Lapak Jeneponto” (Figure 2) in a friendly and easily readable font, consistent with the vision of the application as a user-friendly and inclusive MSME marketplace.



Figure 2. Splash Screen

The toska green color (#33907C) was chosen to symbolize hope, fertility, and growth, in line with the spirit of the developing MSMEs in Jeneponto. Green also reflects the harmonious and supportive ecosystem of MSMEs in Jeneponto. The shopping cart application icon reflects the core function of the application as a platform for buying and selling MSME products.

The combination of elements in this splash screen aims to give a positive first impression and a “feel-good” experience to the user, while also communicating the positioning of Lapak Jeneponto as a representative and aspirational brand of the MSME marketplace application.

After the splash screen, users are directed to the onboarding page (Figure 3) that provides a brief explanation of the Lapak Jeneponto application, consisting of 3 pages.



Figure 3. Onboarding Page

Overall, the onboarding page serves a strategic function to provide a good first impression, educate users, and inspire them to use the Lapak Jeneponto application.

Next, users are directed to the main page (Figure 4), which serves as the central hub of the application. This page prominently features various elements designed to capture the user's attention and guide them through the market-place. The main page displays category product icons, allowing users to quickly browse and navigate through different product categories. It also showcases new products, popular products, and favorite stores, highlighting the diverse offerings available on the

platform. The visually appealing and intuitive layout of the main page is intentionally crafted to pique the user's interest and encourage further exploration of the marketplace. By strategically positioning these key components, the design aims to facilitate a seamless and engaging user experience from the very first interaction.

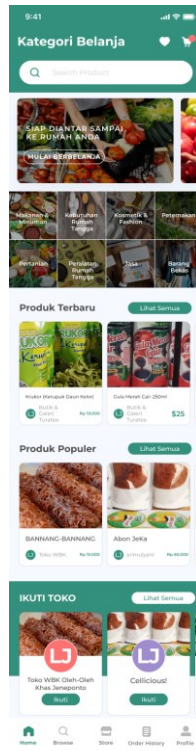


Figure 4. Main Page

The catalog page (Figure 5) serves as the core of the marketplace, presenting users with a comprehensive list of products from MSMEs across Jeneponto Regency. This page is organized into various product categories, including food & beverage, cosmetics & fashion, household needs, and secondhand goods, allowing users to easily navigate and browse through the diverse offerings. To further enhance the user experience, the catalog page incorporates intuitive filtering options based on price range and store location. This empowers users to refine their search and discover products that align with their specific preferences and budgetary constraints. By providing a well-structured and user-friendly catalog, the application aims to facilitate seamless product discovery and selection, ultimately driving engagement and conversions within the marketplace.

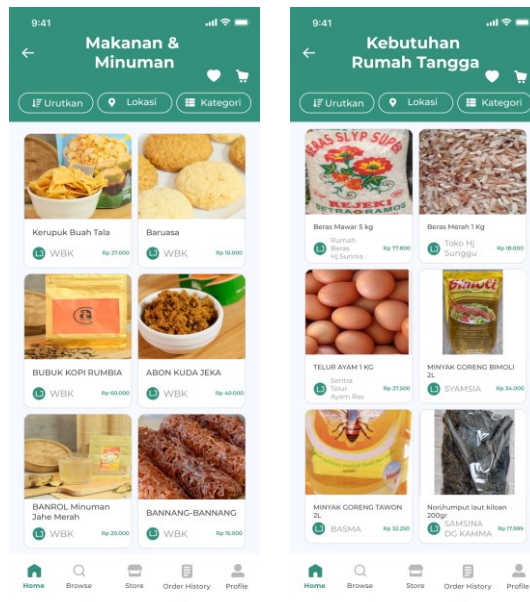


Figure 5. Catalog Page

The product detail page (Figure 6) serves as a crucial touchpoint, providing users with comprehensive information about individual products. This page presents a wealth of details, including high-quality product images, the item's name, price, detailed descriptions, available sizes and variants, and other relevant specifications. By offering such comprehensive and visually engaging product information, the design aims to pique the user's interest and significantly enhance their purchase intent. The attention to detail and the thoughtful presentation of product details on this page are intended to build trust, foster informed decision-making, and ultimately drive conversions within the marketplace.

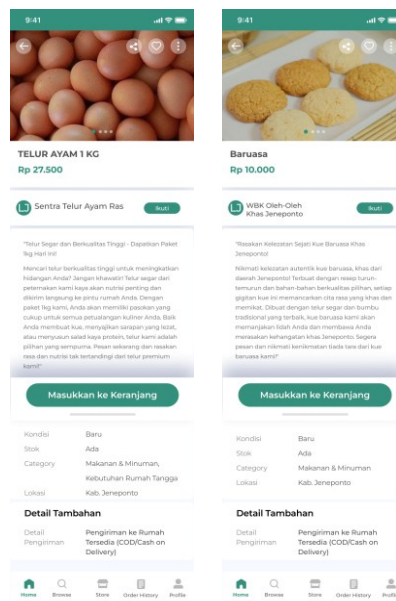


Figure 6. Product Detail Page

The shopping cart page (Figure 7) plays a pivotal role in the user's purchasing journey. This page displays all the products that the user has selected, providing a clear

summary of the items in the cart. For each added product, the page shows the subtotal price, allowing the user to easily track the financial impact of their selections. Additionally, the page presents the total overall price that the user will need to pay, giving them a concise overview of the final cost. By presenting this information in a straightforward and transparent manner, the shopping cart page empowers users to make informed decisions about their purchases and facilitates a seamless checkout process.

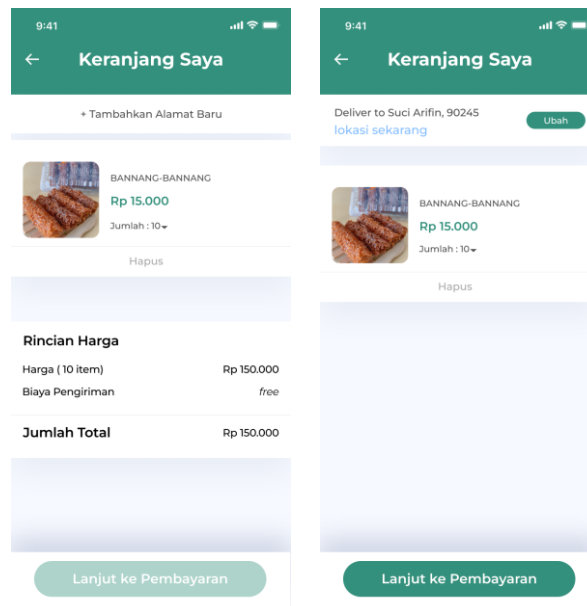


Figure 7. Shopping Cart Page

The payment page (Figure 8) represents the final step in the user's purchasing experience. This page consolidates the order summary, providing the user with a clear recap of their selected products and the total amount due. Crucially, the payment page also showcases the available payment method options, enabling users to choose their preferred mode of transaction, such as bank transfer or e-wallet. By offering a secure and convenient payment experience, the design of this page aims to instill confidence in users and ensure a frictionless completion of the purchase transaction. The payment page serves as the culmination of the user's journey, solidifying the platform's commitment to delivering a comprehensive and user-centric marketplace experience.

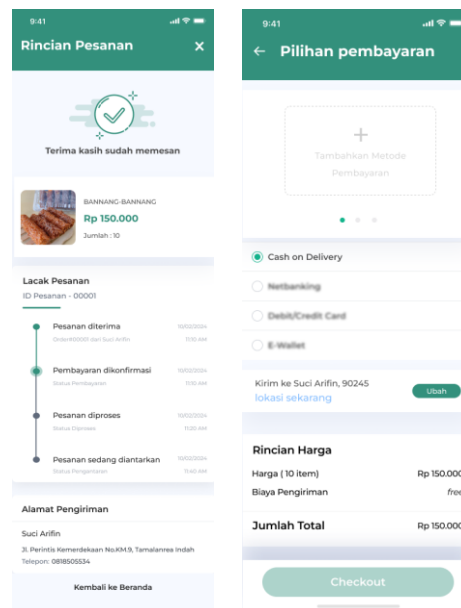


Figure 8. Payment Page

The final stage is the validation stage, where the UI design created is validated. For the validation process, we involved 15 participants, comprised of 10 MSME owners and 5 potential application users. This sample size is justified based on Nielsen's research on usability testing, which established that 5-15 participants can effectively identify 80-90% of usability issues in interface design (Nielsen, 1994). Their model demonstrates that testing with 5 users will uncover approximately 80% of usability problems, with diminishing returns for additional participants beyond this number. Our study used the upper limit of this range to ensure comprehensive coverage across different MSME sectors and user demographics in Jeneponto.

The validation participants were strategically selected to represent diverse demographics including age ranges (25-55 years), varying education levels, different digital literacy capabilities, and various business categories (food & beverage, cosmetics, handicrafts, etc.). The validation methodology employed both quantitative and qualitative approaches through task completion tests where participants performed key functions within the prototype, semi-structured interviews to gather detailed feedback on user experience, and standard usability metrics assessment (ease of use, learnability, satisfaction).

Most users and MSME practitioners in Jeneponto Regency are more comfortable with content in the Indonesian language. In fact, 92% of the validation participants (14 out of 15), consisting of MSME owners and potential customers, stated that they would prefer the UI displays and product information to be presented in 100% Indonesian language to ensure easy understanding and familiarity.

Therefore, all UI displays and product information should use 100% Indonesian language to meet the needs and expectations of the target users in Jeneponto Regency.

In addition to bank transfer or e-wallet, there is a suggestion to add the Cash on Delivery (COD) payment method during the application trial stage. This recommendation came from 73% of participants (11 out of 15), citing that most MSME sellers already have their own delivery couriers to customers. With COD, it will facilitate trial transactions in the application. COD payment means buyers only need to transfer payment on the spot when the package arrives by giving cash to the delivery courier.

Navigation testing showed an 87% success rate for core application tasks, indicating the interface design was intuitive for most users. However, participants with lower digital literacy (5 out of 15) required additional guidance for complex features, suggesting the need for enhanced onboarding support for this user segment.

This validation approach, while utilizing a relatively modest sample size, follows established usability testing principles and provided valuable insights for design refinement. The feedback obtained will be very useful in refining the application to make its UI/UX more familiar to local merchants and buyers and to streamline the trial transaction process on Lapak Jeneponto.

The detailed user interface (UI) of the Lapak Jeneponto application from start to finish can be accessed through the following link: [User Interface \(UI\) of the Lapak Jeneponto application](#) (Arifin & Piu, 2024).

CONCLUSION

Through the Google Design Sprint approach, the UI prototype of Lapak Jeneponto has been successfully designed with key features such as product catalog, shopping cart, and payment. This UI prototype is able to meet the needs and expectations of MSMEs in Jeneponto to market their products through smartphones. The focus on enhancing the visibility and accessibility of MSME products, as well as ensuring an intuitive, user-friendly interface that is easily navigable by both merchant sellers and end-customers, is expected to provide significant benefits to MSMEs and contribute to the development of the regional economy in Jeneponto.

From the design process that has been conducted, the next step is to proceed with the technical implementation of the user interface (UI) design to create the actual Lapak Jeneponto application. This will involve further refinements based on the feedback gathered during the validation stage, such as incorporating 100% Indonesian language content and adding the Cash on Delivery (COD) payment method to better accommodate the preferences and needs of local MSME practitioners and customers. By addressing the key challenges faced by MSMEs in Jeneponto and delivering a user-friendly mobile marketplace application, this research aims to unlock new opportunities for growth and expansion of local businesses, ultimately fostering the overall economic development of the region.

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