

Redesign The User Experience of E-Commerce Mobile Application Based on User Research

Rapid Wireframing Using Balsamiq Mockups

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Abstract—As mobile technology developed, mobile application has become accepted as part of daily life. Most people nowadays have mobile devices and access the Internet mostly from mobile devices. With the development and the ease of mobile technology, everything starts to get digitalized, people want to get things done as easy as touching their smartphone screens. E-commerce has been one of the emerging market in Indonesia and many e-commerce startups have been growing out these last few years. This paper discusses the user experience redesign process for the top Indonesian customer to customer e-commerce mobile application based on user research. This process includes conducting user research, creating user persona, analyzing user pain points and rapid wireframing using balsamiq mockups.

Keywords—*balsamiq mockups; e-commerce; mobile; user experience; user research*

I. INTRODUCTION

Nowadays, smartphone and the Internet are something inseparable in daily life. Everywhere you go, subways, stations, malls, people are etched to their phone screens—smartphone has become something so essential in this fast-paced and agile lifestyle. Everywhere you go, people are constantly searching for Internet connection.

Especially in Indonesia, there will be approximately one hundred million people using smartphones by year 2018. Also, survey conducted by Asosiasi Penyelenggara Jaringan Internet Indonesia (APJII) revealed that more than half of Indonesia's population has now been connected to the Internet. Survey data also revealed that the average internet users in Indonesia use mobile devices with 67.2 million people accessing the internet via mobile devices. With the ease of accessing the Internet on mobile devices, nowadays people like to get everything at the tip of their fingers, including shopping.

In the last few years, e-commerce has been a popular choice for technology startups, especially in Indonesia. Many e-commerce companies launched their own mobile application, but not many mobile application has implemented the best user

experience practices. Designing e-commerce mobile application can be quite challenging as designing in mobile devices has many aspects to consider from various screen sizes to users mobility when using the mobile application. This paper discusses the user experience of Indonesia e-commerce mobile application, Tokopedia and its redesign process. This process includes user research, creating user persona, identifying user pain points, and creating wireframes using Balsamiq Mockup tools. It is a suitable tools for redesigning and creating rapid wireframes, especially in agile startup environment like Tokopedia.

II. RELATED THEORY

A. E-Commerce

E-Commerce or electronic commerce is a part of e-business. E-commerce itself is the purchasing, selling, and exchanging of goods and services over the Internet through which transactions or terms of sale are performed electronically. In general, there are four main types of e-commerce based on the nature of the participants: B2B, B2C, C2B, and C2C. This paper focuses on the user experience of C2C e-commerce mobile application.

C2C model is a business model where two consumers do business with each other directly. Generally, an intermediary or third party maybe involved, but the purpose of the intermediary is only to facilitate the transaction and provide a platform digitally for the people to connect to each other.

B. Tokopedia

Tokopedia is one of Indonesia's biggest online marketplaces. Founded and launched in 2009 by William Tanuwijaya and Leontinus Alpha Edison, Tokopedia provides a consumer-to-consumer (C2C) retail by providing a digital platform for individual entrepreneurs and small and medium businesses to open their own online stores easily and for free.

Tokopedia services have allowed hundreds of thousands of Indonesian small and medium-sized enterprises (SMEs) to send millions of products every month to their customers throughout Indonesia. Tokopedia is also indirectly responsible for the creation of thousands of new jobs through the growing success of our merchants, who often become a positive impact by providing job vacancies in their immediate communities. One of Tokopedia DNA is “Focus on Consumer”, hence user experience process is one of the most important thing in Tokopedia business process.



Figure 1. Tokopedia Logo

C. User Experience

Nielsen and Norman (2014) define user experience as something that encompasses all aspects of the end-user’s interaction with the company, its services, and its products. The first requirement for an exemplary user experience is to meet the exact needs of the customer, without fuss or bother. Next comes simplicity and elegance that produce products that are a joy to own, a joy to use. True user experience goes far beyond giving customers what they say they want, or providing checklist features.

D. User Research

User research focuses on understanding user behaviors, needs, and motivations through observation techniques, task analysis, and other feedback methodologies. According to Mike Kuniavsky (2013), user research is the process of understanding the impact of design on an audience. Surveys, focus groups, and other forms of user research conducted before the design phase can make the difference between any designed product that is useful, usable, and successful, and one that’s an unprofitable exercise in frustration for everyone involved.

E. User Persona

A user persona is a representation of the goals and behavior of a hypothesized group of users. In most cases, personas are synthesized from data collected from interviews with users. User personas are useful in considering the goals, desires, and limitations of users in order to help to guide decisions about a service, product or interaction space such as features, interactions, and visual design of a product. Usually they describe behavior patterns, goals, skills, attitudes, and the environment, with a few fictional personal details to make the persona a realistic character. Defining user persona is critical in user experience design process as it is very important to understand who will be using the product.

F. Wireframe

A wireframe is a visual guide that represents the skeletal framework of a digital product. Wireframe depicts the page layout or arrangement of the screen’s content, including interface elements and navigational systems, and how they

work together. Wireframe usually lacks typographic style, color, or graphics, since the main focus lies in functionality, behavior, and priority of content. Wireframes focus on what a product does instead of how it looks like. Wireframes can be pencil drawings or sketches on a whiteboard, or they can be produced by means of a broad array of software applications.

G. Balsamiq Mockups

Balsamiq Mockups is a rapid wireframing tool that helps generating ideas and transforming it into mockups rapidly. With its drag-and-drop editor, Balsamiq Mockups allows designers to design and communicate ideas through wireframe effectively. It reproduces the experience of sketching on a whiteboard, but using a computer. In a startup company environment everything is fast changing and agile. The application is offered in a desktop version as well as a plug-in for Google Drive, Confluence and JIRA.

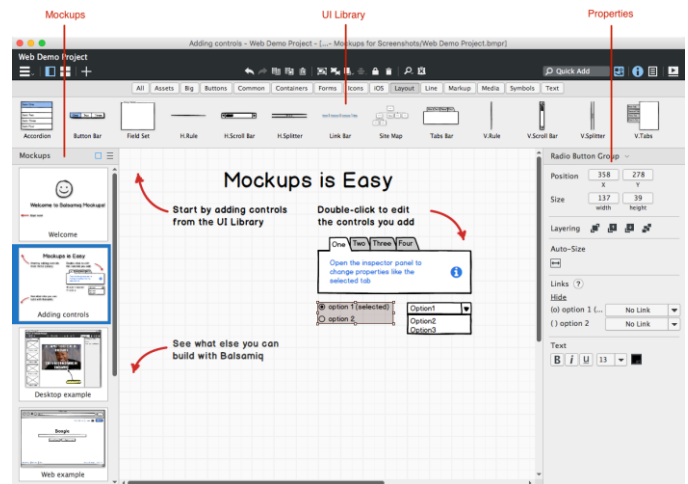


Figure 2. Balsamiq Mockups User Interface

III. USER RESEARCH RESULT AND ANALYZATION

This user research is targeted for users who use Tokopedia iOS mobile application. The method used for this user research is qualitative user research where interviews and on-site usability testing were conducted. The research is done within 10 days span with approximately 30 Tokopedia users as participants. Here are the users personas and pain points gathered based on the research.

A. User Personas

There are three user personas of Tokopedia users based on the user research conducted. Each user persona containing user’s profile, personality, brief characteristic description, goals, frustrations, and motivation level will be elaborated below.

1) Vincent Budiman

Vincent Budiman is an extroverted 27-year-old project manager who lives in the capital city of Indonesia, Jakarta. Vincent has just been married so he is quite busy balancing his work and married life. He is a technology fan and enthusiast who occasionally likes to buy the latest trend of technology, some of his favorite brands to buy in

Tokopedia are Apple, and Asus. Vincent also uses Tokopedia to buy train tickets and make BPJS Kesehatan payments. Vincent's motivations in using Tokopedia are to buy product occasionally as a one-time buyer.

Vincent's goals in using Tokopedia are

- Buy new gadgets as fast and cheap as possible
- Pay BPJS Kesehatan with no fuss
- Get a fast payment flow

Vincent's frustrations in using Tokopedia are

- Search results are not accurate
- Cannot change the payment method once selected
- Cannot cancel a wrong purchase
- Have to register an account in order to buy products
- Too many field to type, even when registering using a Facebook account

2) Chandra William

Chandra William is an introverted 20-year-old college student who is currently living in Bandung, Indonesia. Chandra has only lived in Bandung for less than 2 years so he does not know the best places in Bandung to go shopping and buy cheapest products. Before buying things, Chandra likes to research detailed information about the seller and the product itself. Chandra's motivations in using Tokopedia are to browse products, get detailed information about products, and check products' prices.

Chandra's goals in using Tokopedia are

- Check current and cheapest prices of products
- Compare prices and qualities of products
- Get fast respond from seller about products information

Chandra's frustrations in using Tokopedia are

- Categories are not specific and hard for browsing
- Unable to check the last activity status of sellers, sellers usually took too long to reply
- Messaging the sellers require manually screenshotting and filling message subject

3) Bella Hadijaya

Bella Hadijaya is an introverted and athletic 15-year-old student. She is an active student who joined several sport extra-curriculum activities in her school, she also likes to join some regional sport competitions. Bella's motivations in using Tokopedia are buying sport products with the cheapest price which she can afford.

Bella's goals in using Tokopedia are

- Buy sport equipment with the cheapest price and best quality
- Get products fast, so she can use them before competitions
- Compare products and sellers

Bella's frustrations in using Tokopedia are

- Hard to find the real trustworthy sellers
- Hard to compare same products between different merchants
- Hard to find specific product categories

B. User Pain Points

Based on the analyzation of user research and user personas, here are the user pain point in using Tokopedia iOS mobile application.

- There are too much field to fill on registration and login page;
- Search bar is only accessible in homepage so users have to go back to homepage to search products;
- Users are unable to search for a certain category in search bar;
- Buyers annot contact sellers in the product page directly, so users have to go to the seller's profile first;
- Message box visually appear rigid like writing e-mail and users have to manually fill the subject with the product's name;
- There is no sign to tell users when the last time seller is active or online, so buyers do not know when sellers are no longer active in Tokopedia;
- Payment and buying flow are not safe to use as there is last confirmation after users choose payment method and users are not able to cancel.

IV. REDESIGN USING BALSAMIQ MOCKUPS

After analyzing the user research result, the next step is to redesign and improve some of the user experience concept of the mobile application. To deliver the ideas quickly, this paper uses Balsamiq Mockups to create wireframes of the mobile application screens. This paper only covers some screen redesigns.

A. Login and Register

The login and register page got a few improvements and change as users do not need to retype their password in the registration form to confirm the correctness of their password, instead they can click the eye button on the password field to check whether they have typed the correct password. Also, the login and register form are only displaying the required field so users does not have to fill in many field to load or register.



Figure 3. Wireframe of Redesigned Login and Register Page

B. Homepage and Categories

There are also few changes to the homepage and categories menu. Search bar now can be found not only in homepage, but also several page in the application. Specific categories can be accessed through the hamburger button on the top left of

homepage. Carousell slider is not automatic so readers can take their time to read.

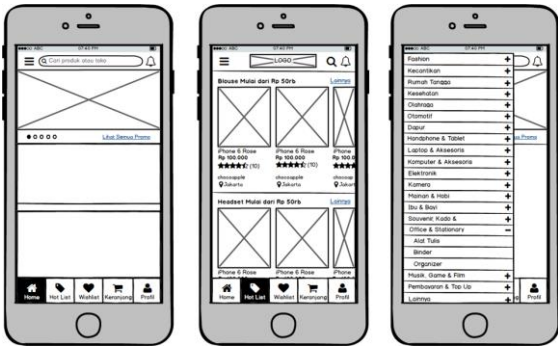


Figure 4. Wireframe of Redesigned Homepage and Categories

C. Product and Chat

There are few changes on product and message page. After redesigning, now users can contact seller directly from product page, also the design of the message box is changed to chat screen with seller's last active status. Users also do not need to fill the subject and screenshot the product manually to ask the seller about the product

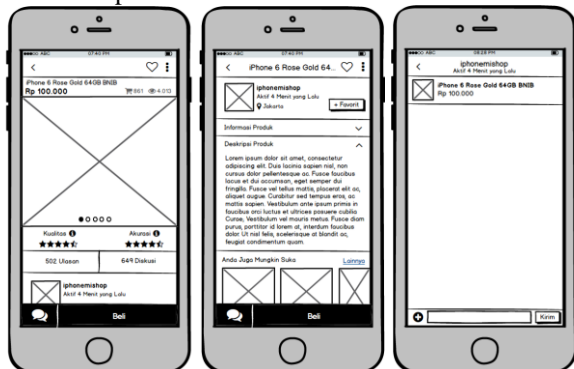


Figure 5. Wireframe of Redesigned Product and Chat Page

D. Buying and Payment

After the redesigning, users do not have to login or register to buy products, instead they can provide phone number and email to do one-time buying. There is also a confirmation page where users can confirm or change their buying and payment details.



Figure 6. Wireframe of Redesigned Buying and Payment Page

V. CONCLUSION

Currently, e-commerce is one of the most promising business in Indonesia. E-commerce companies should pay more attention to the user experience in their mobile application as majority of Indonesians use mobile devices to access the Internet. There are still many improvements that can be made on Tokopedia mobile application which can increase the quality of user experience and user satisfaction. User research is a critical process in designing or redesigning the user experience of mobile application as it is important to gain insights from the users and understanding who will be using the product. Balsamiq mockups is great tool for creating wireframe rapidly and used to redesign user experience concept in an agile environment like startup company.

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STATEMENT

I hereby declare that the paper I am writing is my own writing, not adaptation, nor translation from someone else's paper, and not plagiarism.

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