Implementation of Lean UX to Improve the Quality of User Experience (Case Study PT. XYZ)

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Abstract

The importance of websites in the modern digital world encourages various companies to develop effective user interfaces (UI) and user experiences (UX). This study aims to design the UI/UX design of PT. XYZ's website using the Lean UX method, which focuses on active collaboration with users in developing a Minimum Viable Product (MVP). The Lean UX method involves four main stages: Declare Assumptions, Create MVP, Run Experiments, and Feedback and Research. Testing was carried out using the System Usability Scale (SUS) to measure the level of usability. The results of the study showed that the new UI/UX design significantly improved efficiency and user satisfaction, with a SUS value of 80, which is included in the "Excellent" category. This study makes a significant contribution to website development in the digital sector, especially in designing user-friendly interfaces that are centered on user needs.

Keywords *— Lean UX, UI/UX, MVP, System Usability Scale, Website Design*

1. INTRODUCTION

Websites are currently an important component in the digital ecosystem for companies, organizations, and educational institutions. Websites not only function as a means of information, but also as a suitable medium to introduce the various potentials and advantages of a product that is to be marketed to the public[1]. According to an internet usage survey conducted by (APJII) (Association of Indonesian Internet Service Providers) in 2023-2024, the number of Indonesian internet users in 2024 reached 221,563,479 people out of a total population of 278,696,200 Indonesians in 2023.

From the results of the 2024 Indonesian internet penetration survey released by APJII, Indonesia's internet penetration rate reached 79.5%. Compared to the previous period, there was an increase of 1.4%[2]. This shows how big a role the internet plays in shaping the behavior patterns of modern society, including in terms of searching for information, shopping, and communicating.

The development of a website is often carried out without observing users, resulting in errors in the development process. Many websites force their users to use features that they sometimes don't need or even make it difficult for users[3]. Good UI/UX design not only affects the user experience, but also their perception of a brand or business. In general, UI is defined as a collection of graphic elements used as a means to interact and control a system[4]. UI is very important in application systems because almost all application operations use it. A bad interface affects the productivity of a system[5]. User experience is a combination of visual, aesthetic, and emotional aspects that depend on the usability and customization of the product[6]. The principle in designing UX is to obtain user comfort and satisfaction. To improve the quality of information and user satisfaction in this study, website design can be done using the Lean UX method.

In this context, PT. XYZ, an information technology consulting company that focuses on integrated digital solutions, faces challenges in redesigning their website to meet the increasingly dynamic needs of users. Currently, the website is owned by PT. XYZ is experiencing a number of problems related to the incompatibility of design with user needs, lack of consistency between pages, and lack of user involvement in the development process.

The application of the Lean UX method was chosen as the main approach in this study because it places users as the focus to get feedback as early as possible so that it can be used to make quick decisions[7].

The UI/UX design design with the Lean UX method was chosen because it combines the principles of Agile, Design thinking, and Lean Startup so that it can be used efficiently for application development[8]. Lean UX has four stages as in Figure 1. Lean UX Procedure Stage. For UX design development, namely Declare Assumption, Create a Minimum Viable Products (MVP), Run an Experiment, and Feedback and Research[9].

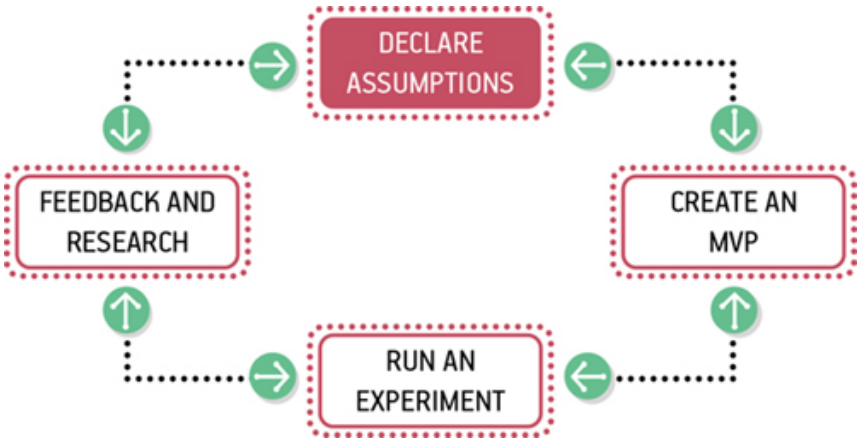


Figure 1. Lean UX Procedure Stage

This approach actively involves users in the development stages by providing a Minimum Viable Product (MVP) that can be tested by users to get feedback on the interface design and make necessary improvements according to the responses received. With this approach, it is expected that the website development process will be more responsive to user needs and preferences, thereby improving the overall user experience.

The purpose of this study is to redesign the UI/UX design of the PT website. XYZ using the Lean UX method to improve the quality of user experience. This study also aims to evaluate the effectiveness of the Lean UX method in improving user satisfaction through measurement with the System Usability Scale (SUS).

2. RESEARCH METHOD

The research was conducted at PT. XYZ, an IT consulting company located in South Tangerang, Banten. The research period began in April 2024 and lasted for six months, covering the process of data collection, design planning, and testing with users. This study uses the Lean UX approach in redesigning the UI/UX design of PT. XYZ website. This method was chosen because it places users at the center of development and allows design iterations based on direct feedback from users. The research process consists of several main stages as shown in Figure 2.

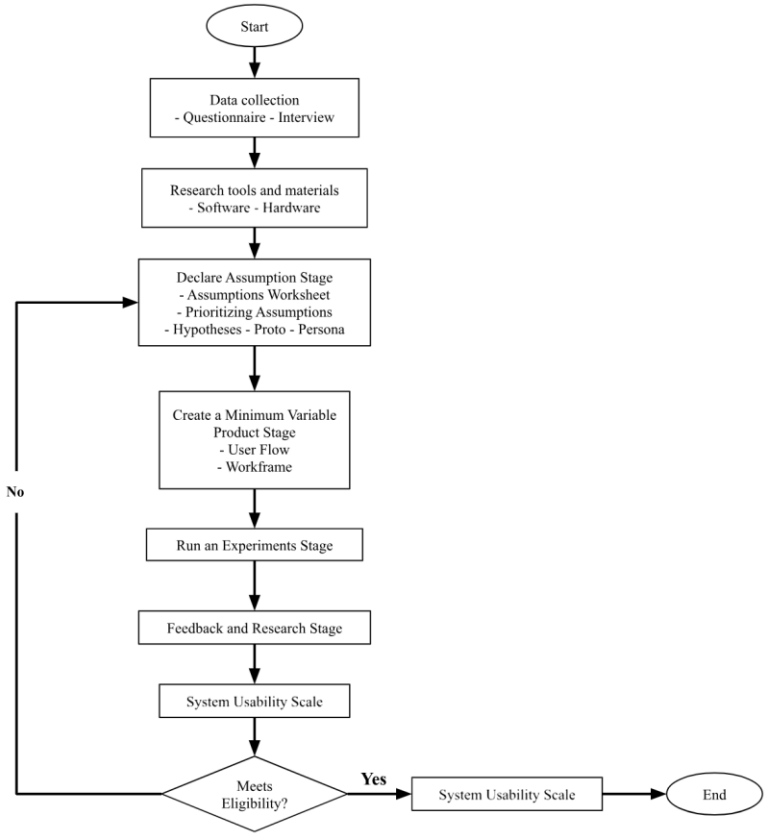


Figure 2. Research Flow

2.1. Data Collection Method

In this study, data collection will be carried out including questionnaires and guided interviews or structured interviews. Data collection will be involved in several groups of respondents including students, workers and internal parties of PT XYZ. The selection of respondents is used by researchers to gain perspective on the experience and needs of users related to the digital solution services offered.

At the data collection stage, a questionnaire will first be distributed to respondents intended for business people, educational institutions and other professional citizens, who have the potential to become service users. This questionnaire was created to identify problems experienced by respondents in using digital services, their interest and satisfaction in using similar digital solution services. In the questionnaire questions which include several perspectives such as user convenience, user satisfaction in interface design and adequate features in digital services. This data will help researchers in getting an overview of user needs and preferences.

The next stage, namely guided interviews or structured interviews, was conducted with internal parties of PT XYZ and several selected respondents. This guided interview stage was conducted to gain in-depth insight into the specific problems faced by users and their expectations for the development of website UI/UX design. This guided interview stage will also learn more about how users interact and what perspectives need to be improved in digital solution services. The results of the two data collection methods are used to develop web UI/UX designs by implementing the Lean UX method.

2.2. Research Tools and Materials

In this study, there are several tools and materials used to support the UI/UX design research process including software: figma, canva and google form. Figma is used as the main tool for creating wireframes and UI/UX prototypes for the website. Canva is used to create visual designs such as carousel or banner designs, icon designs, vector animation designs and other visual designs. Google Form as a place to create questionnaire questions that will be announced to respondents.

2.3. Questionnaire

The questionnaire stage is the process of collecting data by using a list of questions or statements to respondents via a Google form that has been created by the researcher. The results of the questionnaire questions are intended to be used as assumptions based on information obtained from respondents regarding user needs and interests in digital solution services. The questionnaire is based on references from (Rafiq, 2023)[10] where the researcher changed several questions to adjust to the research theme of designing UI/UX website designs. The following is Table 1. of questionnaire questions, which can be seen in the table below.

Table 1. List of Questionnaires Before UI Design Implementation

No.	Question
1.	How often do you use digital solution services to improve your daily activities, business, or education?
2.	What social media do you use most often to access digital solution services? (Choose one)
3.	How easy is it for you to find and use digital solution services for your daily activities, business, or education?
4.	How often do you experience difficulties when using digital solution services for your daily activities, business, or education?
5.	How important do you think user interface (UI) design is in digital solution services for your daily activities, business, or education?

No.	Question
6.	How much influence does user interface (UI) design have on your decision to use digital solution services for your daily activities, business, or education?
7.	How satisfied are you with the use of the digital solution services that you currently use for your daily activities, business, or education?
8.	How important do you think it is to have digital solution services to improve operational effectiveness in everyday life, business, or educational institutions?
9.	Do you know about website startup through social media or websites?
10.	If there is a website-based digital solution service, such as a website which offers various digital services such as web development, SEO, information systems, digital marketing, content creation and others that can improve the effectiveness and operations of businesses and educational institutions, can it help you?

2.4. Guided Interview

This stage is conducted with the Chief Executive Officer (CEO) with the aim of finding out and getting an idea of the website preferences desired by the client. The results of the interview will be used in the declare assumptions stage as assumptions obtained from the interview data. For guided interview questions, based on references from (Rafiq, 2023)[10] where the researcher changed several questions to adjust to the research theme of UI/UX website design. The list of guide interview questions that will be addressed can be seen in table 2.

Table 2. List of Guided Interview Questions

No.	Question
1.	What is your goal in having this website design?
2.	How do you want the website to differentiate itself from your competitors?
3.	How do you want to ensure that visitors are satisfied and find it easy to use the website?
4.	What do you think should be informed on the website?
5.	What is expected with the website design plan for? (In terms of features or appearance)

2.5. Declare Assumptions

At this stage, a list of problem assumptions will be made based on user explanations from the results of questionnaire data and guided interviews to solve the problem. The list of assumptions contains questions about opinions and problems experienced by users[11].

2.6. Problem Statement

A problem statement is a stage that aims to define the problems that users will face and also the purpose of creating the system. The creation of this problem statement is obtained from the results of questionnaires and interviews with sources (guided interviews) which produce needs in feature development.

2.7. Assumptions Worksheet

This stage contains questions that will be made and produce assumptions from the problem statement. The creation of these assumptions must consist of user assumptions and business assumptions which are combined to form an assumptions worksheet.

2.8. Prioritizing Assumptions

This stage is a stage that aims to prioritize assumptions based on the high or low level of risk that will be assessed. This is done to help researchers be more focused and directed in developing features. These assumptions are grouped by value.

2.9. Hypotheses

This stage is carried out by researchers to create hypotheses based on the previous stage. The hypothesis created must contain a question that is considered or believed to be true. This hypothesis aims to facilitate the design of the website.

2.10. Proto - Persona

The next stage is to create a proto persona by creating a user model that will make it easier for researchers to understand the needs and desires and problems faced by potential users. In Proto-persona, researchers create a proto-persona scheme based on references from (Novan Fauzi et al., 2023)[12] by adjusting the addition of information. The proto persona format can be seen in the figure 3.

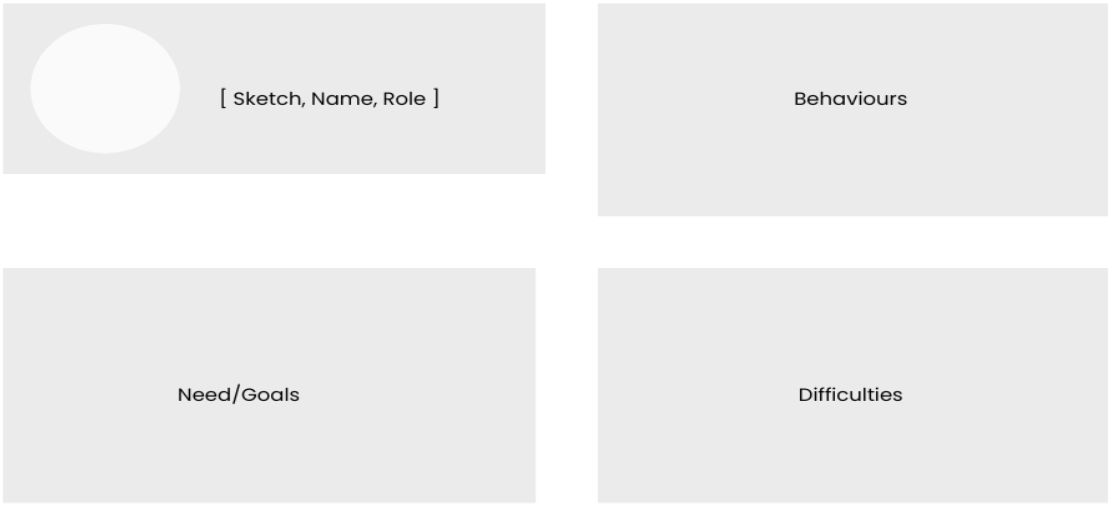


Figure 3. Proto Persona Schema

2.11. Create a Minimum Variable Product (MVP)

The next stage is to create an MVP, this stage is to design an interactive prototype of the website. This MVP stage is carried out by designing a user flow, wireframe and prototype. The explanation can be seen below:

- User flow. At this stage, the researcher will create a user flow to be used to explain the steps of all the features available and provide an overview of the process that will be carried out by the user when using the website.
- Wireframe. At this stage, the researcher will create a wireframe or basic framework for designing a web interface (UI) which is still a rough outline before being implemented into a product. The wireframe is made to provide a clear picture in terms of visual layout and page navigation on the website.
- Prototype. At this stage, the researcher will create a prototype or initial model of the web interface (UI) design that is more detailed than the wireframe. This prototype aims to provide a more concrete and interactive visual representation of how the website will look and function. The prototype is made to test and validate the design and functionality with users

2.12. Run an Experiments

This stage is carried out to evaluate the extent to which the prototype has been developed. Then, the researcher involved internal parties of PT. XYZ and 5 respondents by assessing the prototype of the web interface (UI) design through a questionnaire form after the implementation of the web UI/UX design. The purpose of this stage is to ensure that the results of the prototype design are in accordance with user needs and validate the assumptions made in the previous stage.

2.13. Feedback and Research

The Feedback and Research stage is a step to improve the results of the Run an Experiment that has been carried out previously. Feedback is obtained through a questionnaire to respondents who are prospective website users. At this stage, data from the questionnaire received based on respondents' responses during testing will later be processed using the SUS questionnaire. Research is then carried out based on the questionnaire that has been obtained to identify user needs, which are then realized in the form of a final prototype.

2.14. System Usability Scale (SUS)

System Usability Scale (SUS) is a usability testing method used to evaluate the usability of an application. The SUS method was developed by John Brooke in 1986 and was previously used to test electronic office systems. The SUS method can provide an overview of the usability of an application, this can be done in a short time without eliminating the evaluation of the main aspects of usability such as efficiency, effectiveness, and user satisfaction.

Carrying out this SUS method can be done by calculating a questionnaire consisting of 10 questions divided into two types. 5 questions with positive connotations and 5 questions with negative connotations. The questionnaire was given to participants to be asked to give their opinions about the product being tested. The results of the assessment will then be adjusted to the provisions of the SUS assessment category and used to help ensure the usability and feasibility of the product. The researcher made Table 3. List Of SUS Questionnaires, based on references from (Rafiq, 2023)[10] by changing the questions to suit the title of the researcher's research.

Table 3. List of SUS Questionnaires

No.	Question	SD	D	U	A	SA
1.	I feel that I will easily use the website to obtain the digital services I need.	1	2	3	4	5
2.	I feel that the features provided by the website are difficult to use.	1	2	3	4	5
3.	I feel that the website is not too complicated to order digital services.	1	2	3	4	5
4.	I feel that I need help from others to use the website.	1	2	3	4	5
5.	I feel that the features on the website work as they should.	1	2	3	4	5
6.	I feel that there are inconsistencies on the website.	1	2	3	4	5
7.	I think that other people will understand how to use the website quickly.	1	2	3	4	5
8.	I feel confused when using the website.	1	2	3	4	5
9.	I think that there are no obstacles while using the website.	1	2	3	4	5
10.	I feel that I need to adapt and learn first to use the website.	1	2	3	4	5

There is a Likert scale which generally consists of 5 scale options, namely:

SD = Strongly Disagree, with a value weight = 1
D = Disagree, with a value weight = 2
U = Undecided, with a value weight = 3
A = Agree, with a value weight = 4
SA = Strongly Agree, with a value weight = 5

The next step is the process of calculating the value of each question. For questions with odd numbers, the value is calculated by subtracting 1 from the Likert scale value selected by the respondent:

Questions with odd numbers: value weight - 1, while for questions with even numbers, the value is calculated by subtracting the Likert scale value from 5. Questions with even numbers: 5 - value weight, after the individual values are calculated, the SUS score is determined by adding up the weights of the odd and even question values. The total score is then multiplied by 2.5:

$$x = \Sigma\ bobot\ nilai\ x\ 2.5$$

The last step to determine the average usability score of the website is to calculate the average of the SUS scores obtained from all respondents. The formula is to add up all SUS scores then divide by the number of respondents.

$\dot{X}$ $= \Sigma x / n$

Σx = total value weight, n = number of respondents

The SUS Score Percentile Rank approach is used to manage the average SUS score data and determine the feasibility of UX design. The SUS score guidelines based on references (Novan Fauzi et al., 2023)[12], used to determine the feasibility based on the average SUS Score percentile rank score are shown in Table 4.

Tabel 4. SUS Scoring Guidelines

Score	Grade	Category
80 - 100	A	Excellent
73-80	B	Good
63 - 73	C	Okay
51 - 63	D	Okay
0 - 51	F	Poor

3. RESEARCH RESULTS AND DISCUSSION

3.1. Usability Test Results

Testing of the PT. XYZ website prototype was conducted using the System Usability Scale (SUS). A total of 30 respondents were involved in this test, consisting of potential users and internal users of the company. The SUS evaluation results gave an average score of 80, which is categorized as "Excellent". This score table 5. indicates that the new UI/UX design has succeeded in increasing user satisfaction.

Table 5. The Evaluation Results of Several Important Aspects

No.	SUS Question	Average Score
1.	The website is easy to use	4.2
2.	The features provided are relevant	4.5
3.	The website is not too complicated	4.0
4.	Users feel confident using it	4.3

A high average score on most questions indicates that the resulting prototype meets user expectations regarding usability and ease of navigation.

3.2. Improving UI/UX Quality

The results of implementing the Lean UX method show a significant improvement in the quality of the PT. XYZ website UI/UX compared to the previous design. Here are some aspects that were improved based on user feedback:

- More Intuitive Navigation: User feedback indicated that the previous website navigation structure made some features difficult to find. By iterating using the MVP prototype, the navigation was improved to be more intuitive, allowing users to quickly find the information they needed.
- Visual Consistency: Previous users reported dissatisfaction with the lack of visual consistency in UI elements. With the new design, the consistency of color, typography, and layout across the website pages was improved, which increased the impression of professionalism and connectedness between pages.

- Simplified Feature Usage: Key features offered by PT. XYZ, such as service registration, are now easier to access and use without the need for additional guidance. This is reflected in the increase in scores on questions related to ease of use.

3.3. Comparison with Previous Design

The use of the Lean UX method allowed for rapid iteration based on user feedback received at each stage of development. In the previous design, the biggest issues faced were the mismatch between the features provided and user needs, as well as unintuitive navigation. The implementation of the MVP allowed for immediate improvements to these aspects, with a focus on simplifying the interface without sacrificing functionality.

3.4. Discussion

The application of the Lean UX method has proven effective in overcoming UI/UX problems faced by PT. XYZ. The main success of this method is its ability to integrate users in the development process through repeated testing and design iterations. By placing users at the center of development, the final design produced is more relevant and in accordance with the actual needs of users.

In addition, the increase in usability scores and positive feedback from users indicate that this approach can be applied more widely to other digital projects that require a user-centered approach. The application of Lean UX also allows the development team to respond to changing user needs more quickly and efficiently, reducing the risk of developing inappropriate features

4. CONCLUSION

This study successfully redesigned the UI/UX design of PT. XYZ website using the Lean UX method. The results of the study show that the Lean UX method is effective in improving the quality of user experience (UX) through an iterative approach that directly involves users. The design process that prioritizes interaction with users at every stage of development produces an interface that is more intuitive, consistent, and relevant to user needs.

Testing using the System Usability Scale (SUS) produced an average score of 80, which is included in the "Excellent" category, indicating a significant increase in usability and user satisfaction compared to the previous design. Some of the main improvements include simplifying navigation, improving visual consistency, and increasing ease of access to the website's main features. Adopting the Lean UX method allows the development team to respond quickly to user feedback and adjust the design according to evolving needs. Therefore, this method can be widely applied in the development of other digital projects that require a focus on user experience and repeated testing.

5. SUGGESTED

For future research, it is recommended to explore the integration of Lean UX methods with more comprehensive user testing techniques, such as A/B testing or heat mapping, to gain deeper insights into user interactions.

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