Optimization of financial technology (fintech) with lean UX development methods in helping technical vocational education and training financial management

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Abstract. The effectiveness and optimization of financial services is one of the things that happens when there is financial technology or fintech. Various fintech services have a strategy to attract customers. One of the strategies is to offer promos to potential customers or early customers. Promos given to customers will provide maximum benefits when they use accurate type of promo on a promo provided by fintech services. Knowledge of various fintech services and a lot of promo information will provide an effective alternative for customers to use promos. For this reason, applications or software have been developed to provide information on various e-money and e-wallet services and promos. The method used is Lean UX which consists of 4 stages namely declare assumpts, Develop MVP, run experiments, feedback and user research. The result obtained on this research is a mobile androide application that can display fintech and promo information. Lean UX development is done with 2 iterations and produces features that are validly needed by the user but still need development in terms of User Experience.

1. Introduction
At present, the startups in the Fintech sector in Indonesia are experiencing a growth in numbers. The growth in the number of startups fintech allows for intense competition among these startups so that each startup will make a strategy to improve services for its users. Some ways to improve services or attract users and user loyalty include analysis of consumer data, retention and recurring revenue, and fee base transactions. Analysis of consumer data is needed because by knowing the habits of consumers, bias can be used to evaluate products which in turn can improve the quality of service. Retention is mostly done by startup fintech because with this, the transaction volume will increase and ultimately will support the income from the startup concerned. Promo is one of the efforts that is widely used by the fintech industry in increasing consumer retention and the impact is that merchants benefit from it. Promotions from fintech startups will collaborate with the merchant's loyalty program and this will affect the increase in purchase retention and recurring revenue.

In terms of fintech companies, promos are a means of retention acquisition while on the user side, promos can not only be useful for getting to know fintech products, but can be further utilized to save expenses in the purchase of goods or services through fintech services. At present there is no online-based information service (web or mobile application) that assists users in optimizing the use of fintech company promos.
Research related to the adoption of lean techniques was conducted by Edison [1] where an investigation was carried out on the use of lean for product innovation in large scale companies. Karamanis [2] researching about web development using lean UX methods for use by scientists. Observing is related to the influence of the use of Agile and Lean methods in software development [3]. Usability testing is used as a UX validation method in OWI development research [4]. In Peruzzini [5] the research relates to workers’ ergonomics and human factors in developing product design. The use of Speed dating to explore software development needs was investigated by Zimmerman [6]. The development of a design perspective of metaphors, embodies and visual thinking is examined in Leung [7]. Larusdottir Research [8] tries to integrate UCSD into the agile method. Continues Performance Evaluation was adopted in software development in Brunner [9]. Femmer [10] tried using Smell Requirements on quality assurance.

The existing mobile and web-based services have not yet reached the optimization stage but are still in the form of promo catalogs. For this reason, it is necessary to develop a mobile application that provides fintech company promo information optimization services.

2. Methodology
The research methodology used in this study is Lean UX. Lean UX is a system / software / application development methodology that consists of 2 stages of development, namely Declare Assumption, Create an MVP (Minimum Viable Product), Run an Experiment, Feedback and Research. Figure 3.1 provides an illustration of the development cycle of Lean UX [11]. It is planned that this research will use 2 iterations.

3. Results
Until now the results obtained are only the two iterations stage where it enters the create MVP code section. The previous stage is declare assumption has been completed.

3.1. Declare assumption
The first iteration of the Declare Assumption stage, all parts of the stage are done.

3.1.1. Assumption worksheet. OPM (Optimal Promo Merchant) is designed to achieve the goal so that customers know about fintech / e-money and are interested in using fintech / e-money. We have observed that the use of cash by customers is inefficient in storage (conventional wallets), lack of
security, perishability, and the risk of counterfeiting which is why we develop OPM. How to develop OPM to enable Customers to better know fintech and be more interested in using fintech.

3.1.2. Prioritizing assumption. At this stage an assumption is made of the solution of the problem defined in the problem statement. Consists of two types of assumptions namely user assumption and business assumption. User assumption is made by conducting a survey questionnaire to users. Google form can be used for making surveys.

User Assumption: Users are people who already know fintech / e-money but still need an understanding of fintech / e-money services. The problem to be solved is a Solution so that Users can better understand the use of fintech / e-money services and fintech / e-money profiles

Business Assumption: It is believed that users need information on the use of fintech / e-money services. It is believed that users need the fintech / e-money profile information feature.

3.1.3. Hypothesis. At this stage the priority of the problem solving assumptions determined from the results of the assumption worksheet (survey) is determined.

- Fintech / e-money Service Features
- Fintech Profile Features

3.1.4. Protopersona.

| Sketch and name | Behavioral demographic information |
|-----------------|-----------------------------------|
| **Respondent 1**| **Know about fintech / e-money** |
| Male and female, 26-35 years old | **Understand how to use but still need information regarding services and profiles** |
| Employee | **Fintech / e-money users but still need additional information** |
| Salary: 2-5 Million | **Users access the internet every day and use more mobile phones** |

| Needs | Solutions |
|-------|-----------|
| • Requires information on using fintech / e-money services | • Development of OPM applications |
| • Requires fintech profile information | • Development of fintech / e-money information service features |
| | • Development of fintech / e-money profile features |

**Figure 2.** Protopersona.
3.1.5. Collaborative design.

Figure 3. E-wallet design sketch.

3.1.6. Taskflow.

Figure 4. Taskflow.

3.1.7. Style guide.
- Design pattern: FLUTTER: BLoC, MVP
- Colour: blue and white
3.2. Create MVP
At this stage prototypes of the two features developed were produced. In the picture the initial display, home information and profile display from the e-wallet and e-money are presented.

![MVP user interface](image)

Figure 5. MVP user interface.

3.3. Run experiment
Need to add the promo information feature is a suggestion from the user. At this stage there are suggestions from the development team in the form of bug fixes, appearance and feature addition.

3.4. Feedback and research
Based on the results of testing to 3 users with the method of thinking aloud there is feedback in the form of improved display.

4. Conclusion
Based on the results of the study it can be concluded that the development of the promo optimization application at iteration 1 produces 2 features and still requires improvements in terms of appearance and further features needed to be developed.

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