Implementation of Lean Service to Reduce Lead Time and Non Value Added Activity in a Banking Institution

J Hidayati¹, U P P Tarigan¹ and U Tarigan¹

¹Industrial Engineering Department, University of Sumatera Utara, Jalan Almamater USU Campus Medan 20155, Indonesia
E-mail: rivaijuliza@gmail.com; unipratama@gmail.com; ukurta.tarigan@yahoo.com

Abstract. Along with the increasing needs of society that is consumptive, banking institutions are required to be able to meet the needs of the community through applications with a series of attributes inherent in service. One of them is credit service of motor vehicle ownership. But in its implementation, cancellation of credit becomes the main problem because it has lost the opportunity to get new customers. Lean Service is used to eliminate wasteful or non value-added activities from all credit application process so as to reduce Lead Time and non value added activity. After drawing the company's condition with Value Stream Mapping, activity classification showed that Value Added Activity was 42% while Non Value Added Activity was 58%. Therefore, identification of the root cause of the highest failure with Fishbone Diagram and FMEA with repeated verification activities as a result. This study recommends a new business process by reducing from 21 activities to 14 activities and reducing processing time from 8 days to 4 days.

1. Introduction
In the economic system of a country, the role of banking is very important for the role of economic growth. Banks receive public funds and redistribute loans in the form of community loans. A large number of banks offering new types of savings with a set of attributes inherent in credit services has led to intense competition between banks to attract customers and their various efforts. On the other hand, the needs of society that is consumptive continue to increase such as the need for housing, vehicles, entertainment, and others.

One of the banking institutions that have been established since 1895 this helped the government to provide funds in the form of mortgages and motor vehicle ownership. Credit is any type of loan to be repaid with interest by the borrower in accordance with the agreed agreement [1]. One of the credits offered by the bank is term loan which is a credit used for personal purposes such as consumption, food, clothing, and board [2]. This research is devoted to Motor Vehicle Ownership Credit

In fulfilling the desire of consumers, the company will always think about how to improve the quality of service, in order to increase the trust of consumers. One of them with the Standard Operational Procedure (SOP). The SOP of the submission as follows.
But in practice, the service process offered is not always smooth or in accordance with the company's expectations. Not a few things that the company does not want and the consumer-related quality of service occurs. One of the most frequent problems is the number of potential customers canceling the consumer submission. Credit cancellation is a waste of services, where it has lost the opportunity to acquire new customers for the company and it is a risk in banking. The risk in banking is a difficult condition for a bank that appears in the financial field as well as in other fields so that the bank can’t operate normally or even become bankrupt.

The data on the amount of cancellation of submission credit as can be seen in Table 1.

**Table 1. Number of Credit Submission Data**

| No | Condition     | 2015 | (%)   | 2016 | (%)   | 2017 | (%)   |
|----|---------------|------|-------|------|-------|------|-------|
| 1  | Entry File    | 410  |       | 559  |       | 576  |       |
| 2  | Rejected File | 19   | 46.34%| 21   | 37.56%| 17   | 29.53%|
| 3  | Processed File| 391  | 94.90%| 538  | 96.62%| 559  | 97.04%|
| 4  | Realized File | 352  | 90.02%| 496  | 92.19%| 504  | 90.16%|
| 5  | Canceled File | 39   | 99.74%| 42   | 78.06%| 55   | 98.39%|

The graph of credit application can be seen in Figure 2. following.
Based on the graph above, files denied and canceled continue to increase every year. The file is rejected because the customer who has applied for the credit can’t complete the files in accordance with the conditions specified previously. As for the canceled file, the customer does not proceed or cancel the credit application process.

The result of the interview with Area Sales Manager indicated the cause of the long process the submission of credit is a lot of activity done repeatedly due to not implemented SOP which has been well established beforehand. Particularly in the activity of reviewing the application and completeness of documents that occur in every function of position. Examples on the salesperson doing activities reviewing the application and completeness of the document, the activity will be done back in the Account Officer Sales.

The above reasons are the background for analyzing submission of credit activities that affect the effectiveness of business processes. The lean service approach is used to design business processes to eliminate waste in non-value-added process. The lean principle has also been applied more widely in service companies to improve service to consumers by eliminating waste [5]. In addition to research in the field of services that apply the concept of lean also covers the field of customer service information management [6,7], health [8,9] call service center [10] and transportation [11,12]. In lean concepts, standardization procedures and continuous improvement are fundamental to the continuity of service processes to improve a company’s performance [13, 14].

2. Methodology/Experimental
This research is included in causal descriptive research that is intended to collect information about the status of a symptom that exists, namely the state of the phenomenon according to what it is at the time of research conducted to obtain a general description of characteristics [15].

2.1. Data Collection Method
Data collection techniques in this study began with direct observation to the process of submission of credit to obtain information processing time of each activity of consumer credit realization. The next step to conduct interviews by way of interaction through discussions on the credit proposal process as in the Area Sales Manager.

2.2. Data Processing Method
Data that has been collected and then performed data processing with the steps as follows:
- Value Stream Mapping Processing (VSM)
Value Stream Mapping (VSM) is a visual representation of products/services such as value-added and non-value-added activity information to identify waste in value streams.

- Processing Fishbone Diagram
  The Fishbone Diagram is used to identify the possible cause of the problem from the length of time for the vehicle ownership credit proposal process.

- Processing Failure Mode and Effect Analysis
  Failure Mode and Effect Analysis (FMEA) is used to evaluate potential failures in a process or activity and identify activities that provide potential failure opportunities.

### 3. Results and Discussion

#### 3.1. Value Added Activity and Non-Value Added Activity Identification

The Lean Service concept is lean in service-based areas, with the principle of continuous improvement and the elimination of non-value added activities or waste. The identification of Value Added Activity and Non-Value Added Activity can be seen in Table 2 below.

**Table 2. Value Added Activity and Non-Value Added Activity Identification.**

| No | Activity Sequence                                      | Value Added | Non-Value Added |
|----|--------------------------------------------------------|-------------|-----------------|
| 1  | Submission of credit applications by customers         | ✓           |                 |
| 2  | Checking the completeness of credit documents by Sales Person (SP) | ✓           |                 |
| 3  | Collection of completed documents Account Officer (AO) |             | ✓               |
| 4  | Bank Indonesia Checking ID card                        | ✓           |                 |
| 5  | Field visit and verification                           |             | ✓               |
| 6  | Credit analysis with LAS system by AO                 | ✓           |                 |
| 7  | Verify the validity and validity of documents          |             | ✓               |
| 8  | MP Decisions and submitted to ADK                      |             | ✓               |
| 9  | Verify the completeness of documents by ADK            |             | ✓               |
| 10 | Print credit completeness                              | ✓           |                 |
| 11 | Credit Agreement                                       | ✓           |                 |
| 12 | Disbursement and Documentation                         | ✓           |                 |
| 13 | Disbursement of Customer Credit                        | ✓           |                 |

**Figure 3. Value Added and Non-Value Added Activity Graphs.**
3.2. Fishbone Diagram
The duration of the credit process will be broken down into several related categories such as human, management, environment, methods, and tools/equipment. Where each category is described through the discussion with employees who understand the problems to be discussed (brainstorming). Analysis of the fishbone diagram (fishbone diagram) is used to determine the cause of the length of time the credit application process. A statement is needed to describe the causes that will later be incorporated into the fishbone diagram. The fishbone diagram can be seen in Figure 4.

![Fishbone Diagram](image)

**Figure 4. Fishbone Diagram**

Figure 4. illustrates a fishbone diagram in which this diagram consists of sub problems that have the same possibility in causing the length of the credit application process. Failure Mode and Effect Analysis (FMEA) is an analysis performed to identify the root causes that provide potential failure modes. The analysis is done by direct observation of each file received every month. Observations were conducted over a two-week period and used the same observational format for each sample. Ranking results obtained with FMEA analysis can be seen in Table 3 below.

| No | Activities                                      | Severity Score | Occurrence Score | Detection Score | RPN  | Ranking |
|----|-------------------------------------------------|----------------|------------------|-----------------|------|---------|
| 1  | Verification is done repeatedly                 | 5              | 4                | 5               | 100  | 1       |
| 2  | There is no standard procedure                  | 4              | 4                | 5               | 80   | 2       |
| 3  | Job description is not clear                    | 3              | 5                | 5               | 75   | 3       |
| 4  | Less communication                              | 3              | 5                | 5               | 75   | 3       |
| 5  | Ability to analyze the feasibility of less debtor candidates | 5              | 5                | 2               | 50   | 4       |
| 6  | Lack of Training                                | 5              | 2                | 5               | 50   | 4       |
| 7  | CILAS access system is limited                  | 2              | 5                | 3               | 30   | 5       |
| 8  | There is no standard                            | 5              | 2                | 5               | 30   | 5       |
Table 3. shows the potential failure mode modes of the credit application process. Improvements focus on potential failure modes that have the highest RPN of repetitive verification. Potential failure mode with the second rank RPN is no standard credit process standard. This failure mode causes delay and unclear communication.

3.3. Discussion of Actual Condition and Design Results

The difference between the actual condition and the design and the expected result is that with this research, the design of consumer credit business process decreases the time of credit disbursement process which is initially 8 working days to 4 working days. The faster the service time of credit application will increase the satisfaction of the customers either the direct customer or the customer like the dealer or the developer.

Making Standard Operational Procedure (SOP) also has implications for changes in company management to be more standardized. This working standard ensures consistency of work. Where the company will then be able to make the continuous measurement to get an efficient consumer loan disbursement process.

4. Conclusion

The credit application process is depicted on the value stream mapping of the current state and it is known that the average time of credit application process is 192 hours or 8 working days. After the research, the results of the design showed a decrease in the time of the credit application process to 4 days. The highest ranking by using FMEA is verification is done repeatedly, the second rank is no standard credit process standard. The second is the sub-cause of the method category. So it becomes the focus of research in making improvements.

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