

User-friendly Technology at PT PLN (Persero) Pekanbaru: OE Analysis on Procurement of Goods and Services

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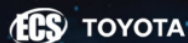
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User-friendly Technology at PT PLN (Persero) Pekanbaru: OE Analysis on Procurement of Goods and Services

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Abstract. Nowadays, the development is more likely to have user-friendly technology, which means that it is easier for someone to do any activity. PT PLN (Persero) Pekanbaru utilizes information technology in the field of procurement of goods and services. The initial stage in the procurement of goods and services is to make an Owner Estimate (OE) analysis. In determining OE, procurement executives must have price references that can be obtained from market prices. The prototype method is a new paradigm in software development. In the prototype/ prototyping method, the resulting software is then presented to the client and the client is given the opportunity to provide input and criticism. The performance achievement of procurement of goods and services in semester 2 of 2017 for OE manufacturing activities at PT PLN (Persero) Pekanbaru is equal to 116% of the 100% target. After the implementation of the OE application in the first semester of 2018 was carried out, the performance of the procurement of goods and services in OE manufacturing activities increases to 120% of the 100% target. By the implementation of the OE application, the performance of the procurement of goods and services has increased from 116% to 120% of the target in OE manufacturing activities.

Keywords: owner estimate, prototype method, user friendly

1. Introduction

Currently, we often hear about technology which is the latest development. Nowadays, the development is more likely to have user-friendly technology, which means that it is easier for someone to do any activity such as business, trade, correspondence, employment, socialization, and/or education. PT PLN (Persero) Pekanbaru is one of the State-Owned Enterprises that one of its main performance is Procurement of Goods and Services. In the process of procuring goods and services, the initial stage is to make an Owner Estimate (OE) Analysis. In determining OE, procurement executives must have price references that can be obtained from market prices, internet prices, company offers or similar work contracts that have been completed.

Problems that occur related to the making of Owner Estimate Analysis are difficulties in finding the data or prices of materials and services from pre-existing contracts. It is because the data are not stored in a storage server that can be used together but they are only stored on employee computers in the procurement of goods and services. Therefore, there is no database of prices that can be used. In addition, there is no standard formula that can be used to determine its owner estimate that will be used now. Thus, the authors are willing to make an application that is easy to use by PLN

employees to analyze the Owner Estimate of Procurement of Goods and Services at PT PLN (Persero) Pekanbaru. By using this application, it is expected that officials of procurement executive of goods and services at PT. PLN (Persero) Pekanbaru can easily determine their owner estimate to be more accurate and accountable by executing officials.

Moreover, the probability theory determines the ratio of the reasonable bid price to the owner estimate (OE) which is compiled by service users [5]. Reasonable ratios are defined as the expectation value of first order statistics of the ratio proposed by (n) bidder with the assumption of (n) the ratios that are random, independent and identical respectively; following a triangular distribution. The estimated ratio of a reasonable bid price is calculated using the models and assumptions that have been explained and is based on empirical data on the ratio of the winner's price to OE from the construction work packages in the Ministry of Public Works in three sectors: hospitality, engineering, and water resources. Based on Nurajizah (2015), Prototype, is defined as a version of a potential system that provides ideas for developers and potential users; the function of particular system in its finished form. According to Meinanda & Cahyono (2017), the Owner Estimate (OE) in the form of point estimate can be converted to OE interval by conducting a Monte Carlo simulation. The simulation method was chosen because it was able to accommodate various types of theoretical distributions of input variables which were analytically difficult to calculate in real system usage. This simulator can be used to simplify cost estimators in performing calculations. OE interval using Monte Carlo simulation method. The simulator is designed according to the actual functional and nonfunctional needs of the system. Verification and validation results show that the simulator works correctly and represents OE calculations on the actual system.

Furthermore, Owner Estimate (OE) is the calculation of the volume of each job multiplied by the unit price of each work which is then added to the tax burden, overhead and profits whose value is determined by the commitment maker. Malik (2013) mentioned that the benefits and maximum overhead costs are 15% of OE. According to Article 66 of the Presidential Regulation No. 70 of 2012, the total value of OE is not confidential (except the details). OE is used as a tool to assess the fairness of prices, including details, and as a basis for setting the highest limit of valid offers. Regarding to the tendency of bidders to bid far below the OE, the government anticipates it by establishing an Implementation Guarantee with the provisions as a general design to provide an overview to the user about the new system that identifies the components of the information system that will be designed. UML model of AUCM requirements consist of use-case diagrams and textual descriptions of use cases (Li, Liu, He, & Long, 2004). However, use-case diagrams only provide static information about the use cases. Dynamic semantic aspects are explained in textual descriptions of use cases as a sequence of interactions between actors and systems. Therefore, formalization and prototyping of the system must focus on the textual description of the use case. Therefore, it is also part of the work in automating the formalization of UML as shown in the following figure.

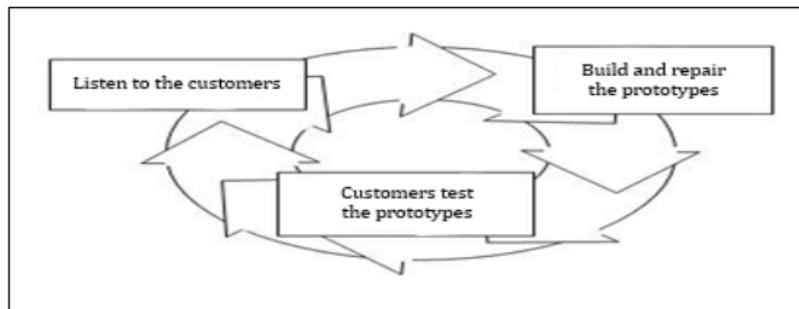


Figure 1 Prototyping Method

It describes that this method is an evolution in the world of software development/ manufacture. This method also revolutionizes the method of developing/ manufacturing old software; i.e. the sequential system commonly known as the prototype method. The flow and stages used from the prototype method include identifying users, developing prototypes, determining whether the prototype can be accepted or not and using the prototypes (Nurajizah, 2015).

2. Research Methods

In this research, the author applies prototyping development methods. The prototype method is one method in software development. This method is a new paradigm in software development. This method is an evolution in the world of software development/ manufacture, this method also revolutionizes the method of developing/ manufacturing old software; i.e. the sequential system commonly known as the Waterfall Method. In the prototype/ prototyping method, the resulting software is then presented to the client and the client is given the opportunity to provide input and criticism; therefore, the software produced is in accordance with the needs and desires of the customer.

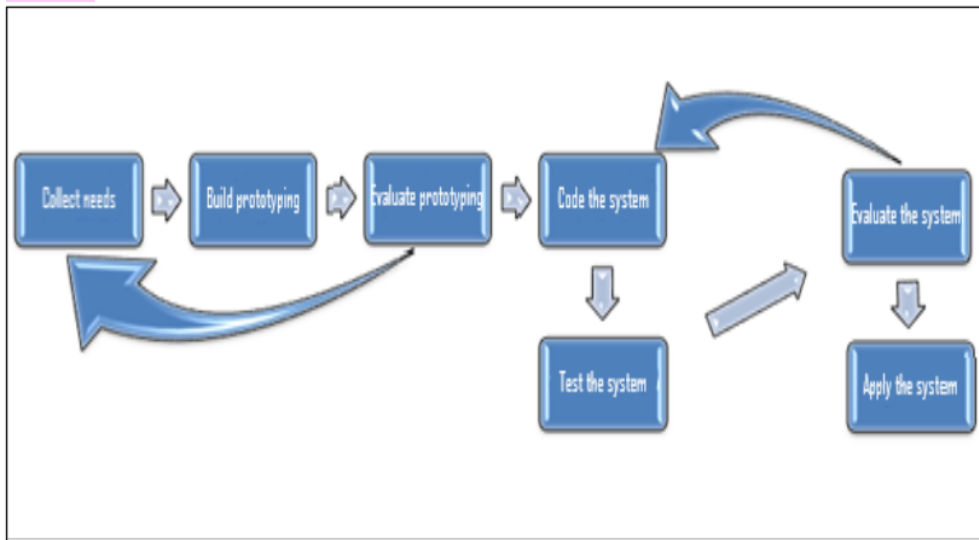


Figure 2 Stages of Prototyping Method

The stages of prototyping method are as follows:

- 1) Collect needs
Customers and developers jointly define the format of the entire software, identify all needs and the outline of the system.
- 2) Build prototyping
It is building prototyping by making temporary designs that focus on serving the customers (for example by making inputs and output formats).
- 3) Evaluate prototyping
This evaluation is carried out by customers whether or not the prototyping that has been built is in accordance with the customer's expectations. If it is appropriate then stage 4 will be taken, if it is not appropriate, the prototyping is revised by repeating stages 1, 2, and 3.

- 4) Code the system
In this stage the prototyping that has been agreed is translated into the appropriate programming language.
- 5) Test the system
After the system has become a ready-to-use software, it must be tested before use. This test is carried by testing the Black Box system.
- 6) Evaluate the system
The customer evaluates whether the finished system is in accordance with the expectation. If yes, stage 7 is carried out; if not, it must repeat stages 4 and 5.
- 7) Apply the system
Software that has been tested and accepted by customers is ready for use. Then, to measure the success of this software, measurement of performance results is carried out before and after this application is implemented.

3. Result and discussion

The OE application used at PT PLN (Persero) Pekanbaru improves the performance of employees in the procurement of goods and services in making their owner estimate (OE). After going through the process design and implementation of the application that has been made, the Output of the OE Application is Online in the form of information on the price of the material or service to be used. Price data that appears are price data for 2016, 2017 and 2018. In addition, users can also see the source of prices obtained in the description column.

Afterwards, the performance measurement is carried out at PLN Pekanbaru Area using the PLN Performance Management System (SIMKP) application. Performance measurement is carried out every 1 (one) semester or for 6 (months) once. The following are the results of measurements of improvement in the performance of the procurement of goods and services at PT PLN (Persero) Pekanbaru before and after the implementation of the OE application.

In the above figure, the achievement of procurement of goods and services performance in semester 2 of 2017 for OE manufacturing activities was 116% of the 100% target. After the implementation of the OE application is carried out Online in the first semester of 2018, the performance of the procurement of goods and services in OE manufacturing activities rose to 120% of the 100% target.

4. Conclusion and Suggestion

The conclusion of the OE application at PT. PLN (Persero) Pekanbaru is the OE application at PT PLN (Persero) Pekanbaru improves the performance of employees in the procurement of goods and services in making their owner estimate (OE). By using the OE application, data on the prices of goods and services can be stored in a database that can be used in the procurement of goods and services. By the implementation of the OE application, the performance of procurement of goods and services has increased from 116% to 120% of the target determined in OE manufacturing activities. Therefore, Suggestion for OE applications at PT PLN (Persero) Pekanbaru to be developed more perfectly is as follows: The application needs to be implemented in other PT PLN (Persero) units.

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