

## Digitalization of *Owner Estimate Preparation* in the Procurement of Goods and Services for Ships Owned by PT PIS

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**Abstract.** This study aims to analyze the implementation of a digitalization system to accelerate the preparation of *Owner Estimate* (OE) in the procurement process of goods and services for ships owned by PT. Pertamina International Shipping. Before digitalization, the preparation of OE was done manually, often requiring a long time and being prone to estimator errors. By adopting digital technology, this process is expected to become more efficient, accurate, and transparent. This research employs a qualitative method with a case study approach at PT. Pertamina International Shipping. Data were collected through observation and document analysis related to the procurement process of goods and services before and after the implementation of digitalization. The results indicate that digitalization has successfully reduced the time required for preparing OE, increased data accuracy, and improved transparency and system integration. Additionally, digitalization has led to operational cost savings and faster decision-making. The conclusion of this study indicates that the implementation of a digitalization system in the OE preparation process has a significantly positive impact on the efficiency and effectiveness of the procurement process.

**Keywords:** Digitalization , *Owner Estimate* (OE), Procurement of Goods and Services , PT. Pertamina International Shipping.

**Abstract.** This study aims to analyze the application of a digitalization system in accelerating the preparation of *Owner Estimates* (OE) in the procurement process of goods and services for ships owned by PT. Pertamina International Shipping. Before digitalization, the OE preparation process was carried out manually, which often took a long time and was prone to estimator errors. By adopting digital technology, it is hoped that this process will be more efficient, accurate, and transparent. This study uses a qualitative method with a case study approach at PT. Pertamina International Shipping. Data were collected through observation, and analysis of documents related to the procurement process of goods and services before and after the implementation of digitalization. The results of the study indicate that digitalization has succeeded in reducing the time to prepare OEs, increasing data accuracy, and improving transparency and system integration. In addition, digitalization also provides operational cost savings and increases the speed of decision making. The conclusion of this study indicates that the application of a digitalization system in the OE preparation process has a significant positive impact on the efficiency and effectiveness of the procurement process of goods and services.

**Keywords:** digitalization, *Owner Estimate* (OE), procurement of goods and services, PT. Pertamina International Shipping.

### 1. BACKGROUND

In the context of procurement, *Owner Estimate* is a key element that can influence and contribute significantly to the acceleration of the process. *Owner Estimate* is a cost and time projection prepared by the project owner or company before the procurement process begins. *Owner Estimate* is the basis for proper planning before entering the procurement stage. By having accurate cost and time estimates, companies can better plan resource requirements, budgets, and implementation schedules.

Before submitting a request for bid, *the Owner Estimate* helps the company to assess the financial capabilities and reliability of potential vendors. With a good understanding of the estimated costs, the company can be more selective in choosing vendors who can provide high-quality products or services within the desired time frame. Having an accurate Owner Estimate allows the company to identify and manage the financial risks associated with the procurement of goods. This can involve addressing potential cost increases, specification changes, or other constraints that may affect the project budget.

Thus, Owner Estimate is not only an administrative tool, but also a key to achieving effective and efficient procurement process acceleration. Manual processes often require a long time and repetitive work, so with digitalization, the process of calculating estimated prices can be automated and save time and labor.

## 2. THEORETICAL STUDY

According to Putera, IGAA, et al (2009) *Owner Estimate* or estimated price itself (HPS) is the price of goods and services and is determined carefully and based on accountable data. Procurement of goods and services is one of the very important activities in various aspects of procurement. Preparation of owner estimate is one of the actions taken during the preparation stage of procurement of goods and services.

According to Dian, E. (2015) currently information technology has been widely used in the procurement process of goods and services by the government. The product catalog module (*e-catalogue*) is an important component of the electronic procurement system (*e-procurement*). This module stores all product and service information needed by users. *E-Catalogue* serves as a basis for compiling specifications of goods and services to be sold, which makes it very important. Procurement of goods and services carried out through information technology and electronic transactions in accordance with regulations is referred to as electronic procurement.

## 3. RESEARCH METHODS

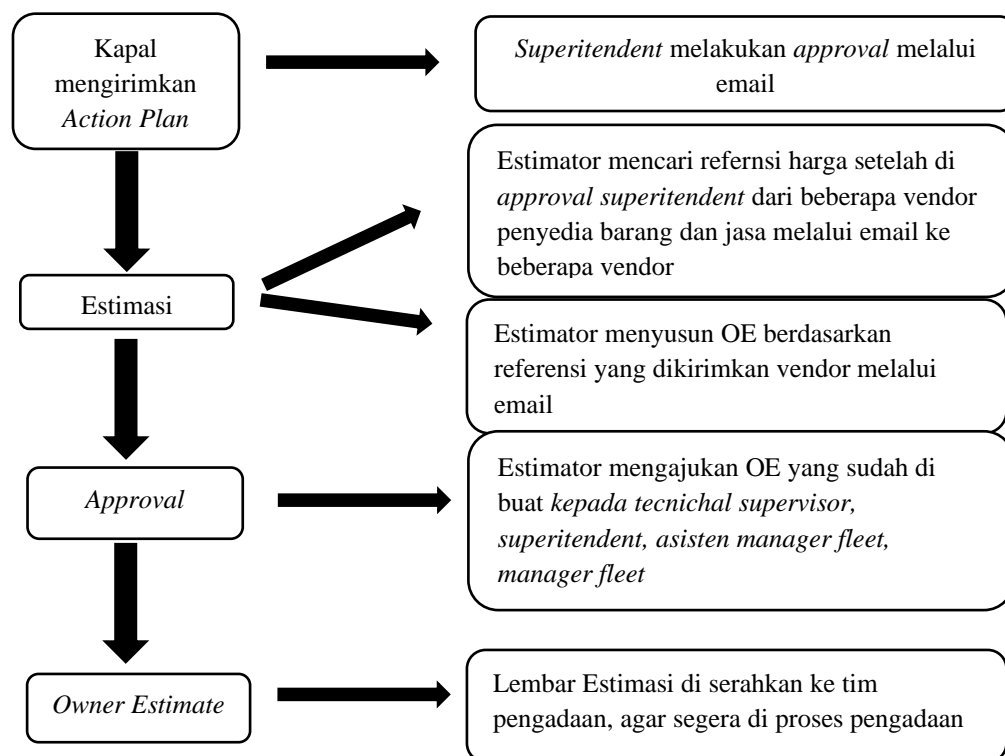
This study uses a descriptive qualitative research method, and the data taken is based on observation and documentation. The observation data obtained were analyzed by identifying behavioral patterns, obstacles, and changes that occurred during the OE preparation process after digitalization, this study was then linked to the objectives of procurement efficiency and effectiveness. Furthermore, documentation in the form of photos and images related to the GOWES application and documents related to the OE preparation process, such as digital

system usage manuals, previous procurement reports, procurement policies and procedures, and documentation of completed projects. The research location is at PT. Pertamina International Shipping on July 17, 2023 to July 17, 2024. The analysis was carried out by presenting data and drawing conclusions.

#### 4. RESULTS AND DISCUSSION

##### Owner Estimate Process for Procurement of Goods and Services Before Digitalization

The process of making *owner estimates* carried out by PT. Pertamina International Shipping has been carried out since the company was founded in 2016, in general, the following is the flow of the process of making *owner estimates* carried out by PT. Pertamina International Shipping:

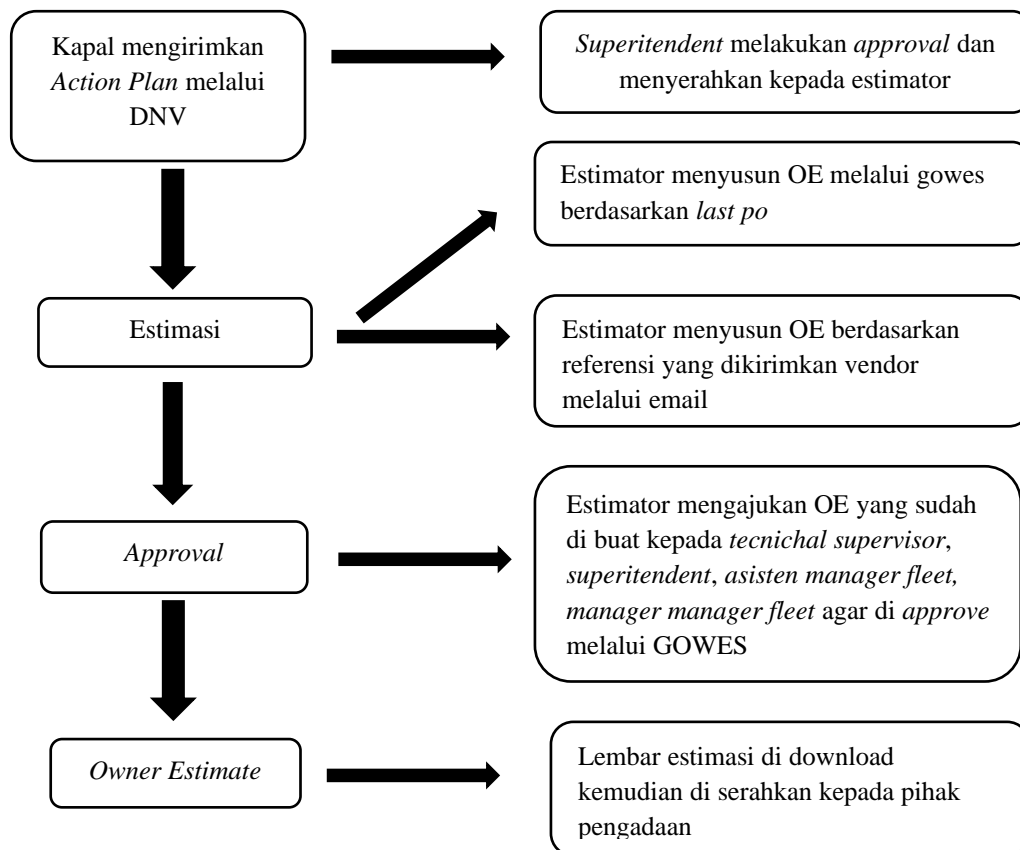


**Diagram 1. Flow of the process for compiling the owner estimate manual**

Based on the information obtained from the needs analysis and market research, the estimator calculates an estimate of the total cost required to obtain the goods or services. This includes direct costs (such as the price of the goods themselves) and indirect costs (such as shipping costs, taxes, and administrative costs). After the estimator finds a vendor that matches the price agreed upon by the estimator and has completed the owner estimate, the estimator then submits the OE to the procurement department so that the next document related to the procurement process for goods and services requested from the ship can be processed immediately.

## Owner Estimate Process for Procurement of Goods and Services After Digitalization

The implementation of the digitalization system for making *owner estimates* has been approved in 2023 at PT. Pertamina International Shipping uses digitalization called *Generated Owner Estimate Shipping* (GOWES) as a medium for making *owner estimates* which is considered to be able to save time in making *owner estimates* which were previously manual, in the GOWES application there is a *last po* ( *purchase order* ) document or the last purchase order that records the purchase transaction of goods or services from the vendor. The following are the stages of making *an owner estimate* using GOWES:



**Diagram 2.** Flow of the digitalization *owner estimate* preparation process

## The Impact of Digitalization of *Owner Estimate Making* on Accelerating Procurement of Goods and Services for Ship Operational Needs at PT. Pertamina International Shipping

Judging from the manual and digitalization process stages in the OE manufacturing process, it is presented in the following table:

**Table 1. Differences in the process flow for compiling manual and digital *owner estimates***

No	Stages	Manual	Digitalization
1	Action Plan	Sent via email from the ship to the fleet function 1 email	The Ship uploads <i>the action plan file</i> to the DNV application which is connected to GOWES.
2	Estimator	<ul style="list-style-type: none"> <li>The estimator requests price references by sending ship requirement data via email to several vendors providing goods and services.</li> <li>Estimators make bids to several vendors</li> <li>Estimator selects vendors that match the company's offerings</li> <li>Estimator prepares OE for approval to fleet function officer 1</li> </ul>	<p>The estimator compiles the OE using existing price references in GOWES and uses it as a reference for offering to vendors.</p> <p>If the price reference for the goods is not yet in GOWES, an email will be sent to the vendor so that a price reference from the list of goods needed is sent, then price offers will be made from several vendors and uploaded to GOWES to become an OE data bank.</p> <p>Approval is carried out through GOWES for appointed officials</p>
3	OE	The OE is submitted to the procurement department for immediate procurement processing through the vendor.	The OE is submitted to the procurement department for immediate procurement processing through the vendor.

*Generated Owner Estimate Shipping (GOWES)* application has been tested with a *user acceptance test (UAT)*. UAT involves checking and testing the software to ensure that all items in the OE document have been included in the software being tested. In addition, testing is carried out to ensure that all items are able to meet the needs of the company PT. Pertamina International Shipping.

GOWES can be defined as an e-Catalogue, an electronic storage place for information about goods, products, or services. As part of e-Procurement, GOWES plays an important role because it contains a list of items, specifications and prices that are used as references in comparing various similar products. Through *e-Catalogue*, service users can ensure that the offers submitted by the vendor have met or not met the established standards, *e-Catalogue* organizes detailed information about the products and services offered, classifies, categorizes and distributes product information correctly.

## 5. CONCLUSION AND SUGGESTIONS

The following is a comparison of the manual system and the digitalization system in the OE process using the GOWES application:

**Table 2. Conclusion of the comparison of manual and digital systems**

Aspects Analyzed	Manual System	Digitalization System	Conclusion
OE Preparation Time	The process of preparing <i>the owner estimate</i> is long and looking for the latest purchase data, so it takes a long time	All owner estimate creation processes are carried out through the GOWES application, and there is the latest purchase data that is backed up in the catalog.	Digitalization reduces OE preparation time.
Data Accuracy	There is no backup of the vendor's price offer data after it is sent via email, so the accuracy of the vendor's offer data is vulnerable.	There is a backup of price offer data from previous vendors via the GOWES application as a digital data storage container.	Digitization increases data accuracy through the E-Catalog digital system for vendor offer price data through <i>the last purchase order</i> stored in GOWES.
Cost Efficiency	Manual OE creation requires a lot of physical documents and storage, which adds to administrative and records management costs.	Digitalization accelerates the OE manufacturing process by automating data collection, calculations, and verification. This reduction in time directly lowers labor and administrative costs.	digitalization in the creation of Owner Estimates (OE) has a significant positive impact on cost efficiency in the procurement of goods and services. Manual processes tend to be longer, prone to errors, and require high administrative costs, as well as being less transparent.
Supervision and Control	Manual processes are difficult to audit and monitor in <i>real-time</i> , increasing the risk of fraud and misappropriation that can potentially increase procurement costs.	Easier to monitor and increase transparency	The use of digital systems reduces the risk of errors. Process transparency is also increased because each stage can be easily tracked and audited.
Ease of Access	Limited to PT.PIS company locations	Accessible from anywhere	With digitalization, the entire OE creation process can be monitored and audited in real-time. This transparency can also be accessed anywhere when one of the officials who does the approval is on duty out of town, then the official can do the approval through the GOWES application.

Data Security	Vulnerable to loss and no data backup	More secure with backup	Digital systems allow data to be stored in encrypted format on a secure server or E-Catalog. This reduces the risk of data loss or damage that often occurs with physical documents.
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Based on the conclusions outlined above, the following are things that need to be considered next:

- a. In terms of optimizing the use of technology, PT. Pertamina International Shipping needs to continue to develop and optimize the use of digital technology in the procurement process. Employee training and system maintenance are investments to support the development of digitalization.
- b. In terms of continuous evaluation and improvement, it is by conducting an evaluation of the GOWES publication to identify areas that need improvement. Involving end users in this evaluation process will provide valuable insights for system improvement.
- c. In terms of data security, it can prioritize data security at every stage of the digitalization process. Protection against cyber threats and secure data management will maintain the integrity of information and prevent sensitive data leakage.

## THANK-YOU NOTE

Praise be to God Almighty, for His grace and blessings, the author can complete this writing. The author realizes that in the process of completing the Writing of the Article, many parties have provided assistance, guidance, and support Mrs. Frisca Mareyta Pongoh, S.Pd., M.Sc as the Head of the Marine Transportation Management Study Program and as the Supervisor of Applied Scientific Work Material who has patiently provided guidance and direction in the preparation of this Article and Mr. Putu Deny Darmawan, SSTPel, as the Supervisor of Writing Applied Scientific Work who has patiently provided guidance and direction in the preparation of this Article.

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