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ORIGINAL RESEARCH

MANAGEMENT INVENTORY CONTROL AND ASSESSMENT OF INFORMATION SYSTEMS BASED ON ISO 25010 TEST

Arum Prayudi Lestari* | Yesica Novrita Devi | Wibowo Arninputranto | Devina Puspita Sari

Dept. of Shipbuilding Engineering, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia, Email: humas@ppns.ac.id

Correspondence

*Arum Prayudi Lestari, Dept. of Shipbuilding Engineering, Shipbuilding Institute of Polytechnic, Surabaya, Indonesia. Email: arumprayudi@student.ppns.ac.id

Present Address

Gedung PPNS, Jl. Teknik Kimia, Kampus ITS Sukolilo, Surabaya 60111, Indonesia

Abstract

A shipyard company certainly has a recording system to manage raw material inventory. The minimum-maximum stock level method analysis was used to calculate raw material inventory control. The calculation results obtained using the min-max stock level method, amounting to 14 items of fiberglass ship raw materials, were calculated, and the resin has the highest utilization value. The ending stock in 2022 for the resin is 195 liters, while the calculated safety stock is 2.08 liters. The Min-Max Stock Level method has not been implemented in the company's raw material inventory. A website-based system is used to control the inventory system. Inventory system development is needed so that the inventory management system in the company runs effectively and efficiently. The quality of system development can be measured based on the ISO 25010 standard feasibility test. Based on three aspects of the ISO 25010 standard, the test results show the percentage results based on the functional suitability aspect of 100% for each validator, which means the percentage in the system criteria is acceptable. In the usability aspect, the percentage obtained is 92.2%, indicating that the designed system's quality is included in the feasible criteria. In eight, the maintainability aspect of the inventory management information system is included in the easy-to-maintain category. The system assessment results based on ISO 25010 can be summarized as follows.

KEYWORDS:

Inventory Control, ISO 25010, Min-Max Stock Level, Raw Materials, Shipyard Company.

1 | INTRODUCTION

The shipping industry is one of the maritime sectors that has received priority for globally competitive development. The government has established the maritime sector as one of the priority areas of national development. This has a positive impact on increasing the competitiveness of the shipping industry or shipyard. The performance of the national shipping industry continues to develop, including an increase in the number of shipyards and ship production capacity. In January 2023, the Directorate General of Sea Transportation, Directorate of Ports of East Java Province, noted that in the field of business Docs and Shipyards have reached 20 companies, with eight companies included in the Special Terminal (Tersus) and 12 companies included in the Terminal for Own Interests (TUKS).

However, there are still many companies that the Directorate Genearal of Sea Transportation of East Java Province has not recorded. Shipyards in Indonesia have experience building various types of ships, ranging from passenger and cargo ships to special purpose ships with the largest graving dock facilities (150.000 DWT)[1]. A shipyard is specially made and equipped with various facilities to support the making, repair, and maintenance of ships. A shipyard company must have a warehouse. The warehouse is important in the shipyard because the warehouse is a storage area for all types of raw materials needed by the company and shipyard. Shipyard companies certainly have a recording system in warehousing activities used to manage raw materials inventory, ranging from incoming and raw materials in the warehouse to outgoing raw materials. The inventory system will run effectively in recording and controlling the inventory of raw materials if supported by good system development.

Based on these problems, an inventory management information system has been developed in the warehouse of a shipyard company. This system makes it easier for operational and construction managers to record inventory without going through a complicated documentation process and missing data. In addition, it also makes it easier for operational and construction managers to control the stock of raw materials/materials in the warehouse, such as the minimum-maximum stock of raw materials/materials that should be in the warehouse. It can make it easier for company leaders to find out the inventory of raw materials, which can be done from anywhere and anytime without having to receive Excel files recording the inventory of raw materials. In controlling the raw materials inventory, it is necessary to analyze the calculation using the Min-Max Stock Level method, which can show the minimum, maximum, and safety stock of the required raw materials.

The development of the system cannot be separated from maintaining the quality of the existing system and continuing to develop it to make the company's management system run effectively and efficiently. After measuring the quality of the development of this inventory management information system, it is hoped that the company can monitor all inventories of company raw materials in warehouses and offices, which can increase employee responsibility and productivity.

This research aims to improve performance in inventory management using the min-max stock level method with the inventory website system and measure the quality of system development to facilitate companies in controlling inventory activities to be effective and efficient. Measurement of the quality of system development can be tested based on the ISO 25010 standard feasibility test, which will determine the level of feasibility of the website-based inventory system used by the company. The feasibility test is based on the ISO 25010 standard and has eight aspects. The eight aspects include functional suitability, performance efficiency, compatibility, usability/operability, reliability, security, maintainability, and portability. This research uses three aspects: functional suitability, usability, and maintainability.

2 | PREVIOUS RESEARCHES

There are studies related to inventory control management, such as those conducted.[2] entitled Design of Goods Inventory Information System at the Center for Food and Medicine Control. The research discusses developing a website-based inventory information system application at Center for Drug and FOod Control (Balai Besar Pengawasan Obat dan Makanan, BBPOM) Serang to speed up making reports and allow the stock to be seen in real-time. The research uses the min-max stock level method to help solve problems related to safety stock at BBPOM.

In addition, research related to testing information systems based on ISO 25010, such as research conducted.[3] entitled Testing Lecture Monitoring System Applications Using ISO 25010 Standards. This research aims to ensure system quality so that errors do not occur and ensure functionality features by testing the ISO 25010 standard. In related research, five characteristics of ISO 25010 were used: functional suitability, usability, reliability, performance efficiency, and maintainability.

The research conducted by the current author proposes that shipyard companies can effectively and efficiently maximize the function of website-based information systems by conducting safety stock analysis using the min-max stock level method applied to fiberglass ship raw materials. Furthermore, testing based on the ISO 25010 standard can ensure that the quality of the inventory management information system is suitable for shipyard companies.

3 | MATERIAL AND METHOD

3.1 | Supplier

An inventory control system is needed to help provide information quickly and accurately to the company. Inventory control is an activity that aims to determine the level and composition of raw material inventory so that the company can effectively and efficiently protect the smooth production, sales, and spending needs. Inventory is one of the important components for the sustainability of the company because inventory can show everything or organizational resources stored in anticipation of meeting demand. Inventory is commonly used to solve problems related to controlling raw and finished raw materials in a company's activities. Therefore, inventory control must be carried out in such a way as to serve the needs of materials or raw materials appropriately and at a low cost [4].

Control is the process of observing the implementation of all organizational activities to ensure that all work being carried out is in accordance with the predetermined plan. Control is related to comparing events with plans and taking corrective action against events that deviate from the plan. Control is needed to see the extent to which the results have been achieved, whether they are in accordance with the plan or there are gaps due to deviations [5].

3.2 | Minimun Maximum Stock Level

The Min-Max Stock method maintains raw material inventory to support smooth production. According. [2] in inventory control using the min-max stock method includes several stages:

1. Determining Safety Stock Safety Stock is extra inventory that needs to be added to ensure that there is always enough stock in case of additional need or delays in the arrival of raw materials.

$$\text{Safety Stock} = (\text{maximum usage} - \text{average demand}) \times \text{Lead time} \tag{1}$$

   Where the Lead time is the average time it takes for suppliers to deliver raw materials.

2. Determine Minimum Inventory (Minimum stock) Minimum Stock is the amount of inventory required during the purchase period. It is calculated by multiplying the order time per period by the average usage in one month/week/day plus the Safety Stock.

$$\text{Minimum stock} = (\text{average demand} \times \text{Lead time}) + \text{Safety Stock} \tag{2}$$

3. Determining Maximum Inventory (Maximum Stock) Maximum Stock is the maximum amount allowed to be kept in inventory.

$$\text{Maximum stock} = 2 \times (\text{average demand} \times \text{Lead time}) + \text{Safety Stock} \tag{3}$$

4. Reorder Point The reorder point is also known as the quantity that needs to be ordered for inventory replenishment.

$$\text{Reorder Point}(Q) = \text{Maximum} - \text{Minimum} \tag{4}$$

The maximum and minimum inventory quantities determine the concept of maximum and minimum inventory. If the inventory has reached the minimum amount, the purchase of raw materials is immediately made until the number of raw materials reaches the maximum inventory. If the inventory of raw materials has reached the maximum, the purchase is stopped. When the raw materials in stock are used continuously, the inventory will reach the minimum point again, and so on. This concept was developed based on the idea that to maintain the continuity of a company's operations, certain raw materials in minimum quantities

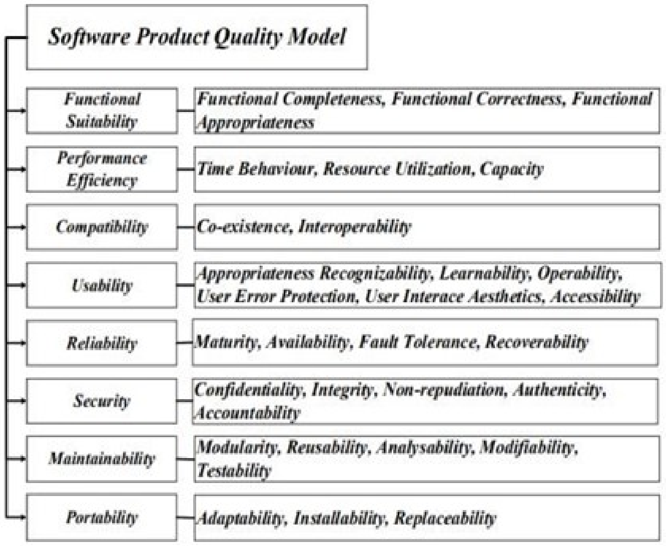

FIGURE 1 Characteristics of Software Product Quality Model

should be available in stock to be used immediately when needed. However, the raw materials stored are not allowed to be too much, so there is a maximum value.[2]

3.3 | Software Testing Based on ISO 25010

Software testing is done on the shipyard company's inventory management information system. Software testing is critical to software quality assurance and presents specifications, design, and coding. Three important things need to be considered in analyzing software quality, namely effective software processes, useful products, and adding value to producers and users[6] ISO/IEC 25010 is developing the ISO/IEC 9126 version. The ISO/IEC 25010 model has quality characteristics that can be considered when evaluating software[6]. The software product quality model is a model that can only be applied to software products because most of the sub-characteristics are related to software and systems. The software product quality model consists of 8 quality characteristics (functional suitability, performance efficiency, compatibility, usability/operability, reliability, security, maintainability, and portability) shown in Figure 1 below:

Characteristics and sub-characteristics in the Software product quality model which consists of:

1. Functional Suitability is a characteristic to measure the extent to which a product or system provides functions that meet needs when used under certain conditions.
2. Performance Efficiency is a characteristic to measure performance relative to the resources used under certain conditions in a system.
3. Compatibility is a characteristic to measure the extent to which a system can exchange information with other systems and perform the required functions when sharing the same hardware or software environment.
4. Usability is a characteristic that measures how users can use a system to achieve specified goals with effectiveness, efficiency, and satisfaction in a specific context.
5. Reliability is a characteristic to measure the extent to which a system can perform a function under specified conditions for a specified period.
6. Security is a characteristic to measure a system in protecting information and data so that the system has a level of data access according to the type and level of authorization.

TABLE 1 The alternative answer scoring categories.

Answer	Score by Validator			
	Validator 1	**Validator 2**	**Validator 3**	**Validator 4**
Yes	Total Score	Total Score	Total Score	Total Score

TABLE 2 The qualitative conversion of feasibility percentage.

Feasibility Percentage	Criteria
≥ 50%	Acceptable
< 50%	Rejected

7. Maintainability is a characteristic that represents the level of effectiveness and efficiency in the modification process for system improvement according to adjustments and changes in the operational environment.

8. Portability is a characteristic that represents the level of effectiveness and efficiency of the system in transferring from one device to another.

System quality measurement can be done separately based on the eight types of characteristics previously described. Therefore, this research will measure system quality based on functional suitability, usability, and maintainability characteristics. Functional suitability characteristics present the extent to which a product or system provides functions that can meet the needs expressed and implied under certain conditions. Usability characteristics explain the system's feasibility, including the categories of very less feasible, less feasible, quite feasible, feasible, or very feasible, which depend on the percentage of the calculation results from the questionnaire. The maintainability characteristic shows the system will respond well if the user inputs an error. Testing in this study was carried out on Functionality Suitability, Usability, and Maintainability.

1. In the functional suitability aspect, using a research instrument as a test case with a Guttman scale. The Guttman scale is used to get a firm answer to a problem that wants to be stated. This type of measurement scale gets a firm answer: "Yes" or "No"; yes is worth one item, and no is worth zero for each item. Test cases were given to 2 media/system experts, while percentages for each study can measure the results of the tests carried out by validators. In this case, the Warehouse Admin is validator 1, the Director is validator 2, the Project Manager is validator 3, and the Finance Manager is validator 4.

$$ES = \left(\frac{\sum \text{Score}}{\text{Question Item}} \right) \times 100\% \quad (5)$$

2. Analysis of usability characteristics is done by analyzing user responses using a scale with 5 choices called a Likert scale. Likert scale is used to measure the attitudes, opinions, and perceptions of a person or group of people about social phenomena[7]. Analysis of usability data is done by calculating the average answer based on the score of each answer from the questionnaire questions filled out by the respondent. The calculation formula used is as follows:

$$\text{Earned score} = (\text{JSS} \times 5) + (\text{JS} \times 4) + (\text{JKS} \times 3) + (\text{JTS} \times 2) + (\text{JSTS} \times 1) \quad (6)$$

$$\text{Maximum score} = \text{JP} \times \text{JR} \times 5 \quad (7)$$

Description:
JSS: Number of respondents answering Strongly Agree
JS: Number of respondents answering Agree
JKS: Number of respondents answering Disagree
JTS: Number of respondents answering Strongly Disagree
JSTS: Number of respondents answering Strongly Disagree
JP: Number of Questions
JR: Number of Respondents

TABLE 3 The score interpretation criteria table on usability aspects.

Percentage Result	Eligibility Criteria
0% - 20%	Very less feasible
21% - 40%	Less feasible
41% - 60%	Decent enough
61% - 80%	Worth
81% - 100%	Very feasible

TABLE 4 Table Analyzing the Results of Testing the Maintainability Aspect

Aspects	Research
Instrumentation	There is a warning from the system if an error occurs along with error identification
Consistency	Use of one design model for the entire system design
Simplicity	Ease of system management, repair, and development

TABLE 5 The total need and usage of raw materials for fiberglass ships in 2022.

No.	Material	Amount Needed	Total Usage	Unit
1.	Resin (Lt)	8,050	7,955	Liters
2.	Chopped Strand Mat 300 (Kg)	870	860	Kg
3.	Chopped Strand Mat 400 (Kg)	650	645	Kg
4.	Woven Roving 800 (Kg)	870	860	Kg
5.	Catalyst (Lt)	33	32	Liters
6.	Cobalt (Lt)	9	9	Liters
7.	Aerosil (Kg)	66	65	Kg
8.	Mirror Glaze (Canned)	87	86	Cans
9.	Blue Pigment (Kg)	14	13	Kg
10.	Talk (Kg)	575	550	Kg
11.	Compound (Kg)	90	86	Kg
12.	Tiner (Cans)	46	43	Liters
13.	Anti-fouling paint (cans)	47	43	Kg
14.	Ship Paint (Cans)	92	86	Kg

After the score is obtained, then look for a percentage to get an interpretation of the usability test results using the following formula:

$$P = \left(\frac{\text{Earned Score}}{\text{Maximum Score}}\right) \times 100\% \tag{8}$$

The results are then compared with the percentage results in the usability aspect table; the system is considered good if the percentage results show the "Worthy" criteria.

Testing the maintainability aspect uses a measure that is tested by researchers directly in the field operationally, in accordance with the testing instrument mentioned by Land; this test includes three aspects, namely instrumentation, consistency, and simplicity.[7]

4 | RESULT AND DISCUSSION

4.1 | Minimum Maximum Stock Level

Safety Stock is inventory stored in excess of expected demand due to variable demand and/or lead times[8]. Implementing the Safety Stock method is an explanation of the calculation of the amount of safe stock inventory that must be in the warehouse of the shipyard company to avoid delays in production materials. The data used in this calculation is on the need for materials or materials for producing fiberglass-based ships in 2022. The materials or materials used are described in Table 5 below:

Table 5 shows 14 raw materials for producing fiberglass ships. Where the amount of need for each material is for production for 1 (one) year, namely in 2022. Furthermore, calculations are carried out regarding safety stock or safe stock of raw materials / raw materials using the Min-Max Stock Level method. Calculations are carried out on raw materials used in producing fiberglass

TABLE 6 The resin demand and usage in 2022.

Period	Material	Required Quantity (Lt)	Total Usage (Lt)	Remaining (Lt)
Jan	Resin	800.00	740.00	60.00
Feb	Resin	700.00	740.00	-40.00
Mar	Resin	750.00	740.00	10.00
Apr	Resin	750.00	740.00	10.00
May	Resin	750.00	740.00	10.00
Jun	Resin	750.00	740.00	10.00
Jul	Resin	600.00	555.00	45.00
Aug	Resin	600.00	740.00	-140.00
Sep	Resin	750.00	740.00	10.00
Oct	Resin	600.00	555.00	45.00
Nov	Resin	400.00	370.00	30.00
Dec	Resin	600.00	555.00	45.00
Total		8,050.00	7,955.00	95.00
Average		670.83	662.92	7.92

ships for shipyard companies during 2022. Calculate the raw material inventory of resin used by shipyard companies to produce fiberglass ships in 2022 to determine the warehouse's minimum, maximum, and safe stock.

It is known in Table 6 that the initial stock for resin in 2022 is 100 Lt, and the lead time (average time required by suppliers for delivery of raw materials) is 1 (one) day, equal to 0.03 months. Calculations are carried out using the min-max stock level method as follows:

1. 2022 years end stock
   = (Total Need - Total Usage) + Initial Stock in 2022
   = (8,050 - 7,955) + 100
   = 195

2. Safety stock
   = (Maximum usage - Average demand) x Lead Time
   = (740 – 670.83) x 0.03
   = 2.08

3. Minimum stock
   = (Average demand x Lead Time) + Safety Stock
   = (670.83 x 0.03) + 2.08 = 22.21

4. Maximum stock
   = 2 x (Average Requirement x Lead Time) + Safety Stock
   = 2 x (670.83 x 0.03) + 2.08 = 42.33

5. Reorder Rate (Q)
   = Maximum - Minimum
   = 42.33 – 22.21 = 20.12

The above calculations show that the final resin stock in 2022 is very large compared to the safety stock. For this reason, shipyard companies need to take action so that inventory materials are not overstocked in the following year. The number of reorders is 20.12 Liters of resin, which means it does not exceed the maximum stock,k, so the value shown by Q is still normal.

Table 7 results from calculating safety stock using the Min-Max Stock Level method on fiberglass ship raw materials for shipyard companies in 2022. The analysis results of the safety stock calculation using the min-max stock level method explain

TABLE 7 The calculation results of Min-Max Method on Fiberglass ship raw materials

No	Raw Materials	2022 End Stock	Safety Stock	Minimum Stock	Maximum Stock	Reorder Point (Q)
1	Resin (Lt)	195	2.080	22.21	42.33	20.12
2	Chopped Strand Mat 300 (Kg)	3	0.250	2.40	4.55	2.15
3	Chopped Strand Mat 400 (Kg)	16	0.180	1.82	3.43	1.61
4	Woven Roving 800 (Kg)	7	0.250	2.40	4.55	2.15
5	Catalyst (Lt)	1.75	0.010	0.10	0.18	0.08
6	Cobalt (Lt)	1.40	0.002	0.02	0.06	0.04
7	Aerosil (Kg)	1.50	0.020	0.18	0.35	0.17
8	Mirror Glaze (Canned)	2	0.020	0.24	0.46	0.22
9	Blue Pigment (Kg)	1.40	0.010	0.04	0.07	0.03
10	Talk (Kg)	10	0.130	1.51	2.88	1.37
11	Compound (Kg)	5	0.020	0.25	0.47	0.22
12	Tiner (Cans)	4	0.010	0.13	0.24	0.11
13	Anti-fouling paint (cans)	5	0.010	0.12	0.24	0.12
14	Ship Paint (Cans)	5	0.040	0.27	0.50	0.23

TABLE 8 The results of testing the functional suitability aspect

Amswer	Score by Validator			
	Warehouse Admin	Director	Project Manager	Finance Manager
Yes	82	40	52	52
No	0	0	0	0
Total	82	40	52	52
Percentage	100	100	100	100

that the amount of raw material inventory at the end of 2022 is much higher when compared to the safety stock calculation. This shows that the Min-Max Stock Level method was not previously carried out on the raw materials used for producing fiberglass ships at the shipyard company. This results in an excess inventory of raw materials and causes the company's investment to settle so that the company purchases raw materials or produces raw materials every time production starts. The analysis of the calculation of safe inventory or safety stock for raw materials for the production of fiberglass ships states that the amount of inventory controlled by the min-max stock level method produces more efficient results than the company's final inventory. We recommend that companies apply the min-max stock level method effectively for the coming period so that there is no waste of storage space and that raw materials can be ordered at the backorder level so that there is no delay in their arrival.

4.2 | Testing System

System testing is carried out to determine whether the system is acceptable, whether the system is feasible to use, and determine the effectiveness and efficiency of the system created. The results of system testing based on the ISO 25010 model quality standards using aspects of functional suitability, usability, and maintainability are as follows:

4.2.1 | Functional Suitability Testing

Based on the functional suitability aspect, the system validation test determines the feasibility of the inventory management information system for PT Fiberboat Indonesia. Internal company parties carry out this validation test to determine whether the system can be accepted or rejected.

This validation test data collection was carried out by 4 (four) validators who checked the system's functions. The results of testing and assessment of functional suitability aspects by the company's internal validators of the system created are shown in Table 8 .

1. Warehouse admin validator

$$\text{Yes} = \left(\frac{\sum \text{Score}}{\text{Question Item}}\right) \times 100\%$$
$$\text{Yes} = \left(\frac{82}{82}\right) \times 100\%$$

$$\text{Yes} = 100\%$$

2. Director validator

$$\text{Yes} = \left(\frac{\sum \text{Score}}{\text{Question Item}}\right) \times 100\%$$
$$\text{Yes} = \left(\frac{40}{40}\right) \times 100\%$$
$$\text{Yes} = 100\%$$

3. Project Manager validator

$$\text{Yes} = \left(\frac{\sum \text{Score}}{\text{Question Item}}\right) \times 100\%$$
$$\text{Yes} = \left(\frac{52}{52}\right) \times 100\%$$
$$\text{Yes} = 100\%$$

4. Finance Manager validator/spending department

$$\text{Yes} = \left(\frac{\sum \text{Score}}{\text{Question Item}}\right) \times 100\%$$
$$\text{Yes} = \left(\frac{52}{52}\right) \times 100\%$$
$$\text{Yes} = 100\%$$

Based on the calculation of Formula 1 in the functional suitability aspect in Table 5 , a percentage of 100% is obtained for each validator. With details of the warehouse admin validator with 82 questions and a total of 82 "Yes" or successful answers, and a final percentage of 100%

The value is then converted into qualitative data to draw conclusions based on the functional suitability rating scale as listed in Table 3 . The table explains that a percentage of more than equal to 50%

4.2.2 | Usability Testing

Testing based on usability determines the system's feasibility level related to the shipyard company's inventory management information system. Because the system is only intended for internal companies, it is tested on four (four) users. Respondents fill out questionnaires related to their experience using the system.

The respondents' answers to the questionnaire are then calculated based on their answer scores and compared with the percentage of usability assessment categories to determine the system's eligibility criteria.

Based on Table 9 , calculations are made based on usability aspect testing with Formula 2 for the calculation formula for the obtained score, Formula 3 for the maximum score calculation formula, and Formula 4 to calculate the percentage in getting the interpretation of usability testing results.

$$\text{Earned score} = (JSS \times 5) + (JS \times 4) + (JKS \times 3) + (JTS \times 2) + (JSTS \times 1)$$
$$= (63 \times 5) + (35 \times 4) + (2 \times 3) + (0 \times 2) + (0 \times 1)$$
$$= 315 + 140 + 6$$
$$= 461$$

TABLE 9 The result of usability aspect testing.

No.	Statement	ss	s	ks	ts	sts
	Ease of Learning					
1	I learned this website quickly	3	1			
2	I can easily remember how to operate this website	2	2			
3	I became skillful in using this website quickly	1	3			
4	This website is easy to learn and understand how to use.	4	0			
	User-friendliness					
5	This website is easy to use	4	0			
6	This website is practical to use	4	0			
7	This website is easy to understand	3	1			
8	This website is flexible	3	1			
9	The layout and tools on this website are very clear	1	3			
10	There are no difficulties as long as I use this website	1	3			
11	There is no need for written instructions in running this website		4			
12	I can handle myself when something goes wrong on this website.		3	1		
13	If an error occurs, this website will inform you of the error.	2	2			
14	This website provides alerts or warnings before I submit.	3	1			
	Usability					
15	This website is very useful for recording raw materials in the warehouse.	4	0			
16	This website helps me be more effective	3	1			
17	This website helps me be more productive	4	0			
18	This website saves me time when using it	3	1			
19	This website makes it easier for me to complete the recording of raw materials in and out of the warehouse.	2	2			
20	This website makes it easier for me to make reports on the entry and exit of raw materials in the warehouse.	3	1			
21	This website makes it easier for me to check stock and make reports related to stock items in the warehouse.	3	1			
	User Satisfaction					
22	This website works as I expected	2	1	1		
23	The information provided by this website is very clear	3	1			
24	I feel satisfied with the ability of this website to perform its functions	2	2			
25	I feel satisfied with this website	3	1			
TOTAL		63	35	2	0	0

Maximum score $= JP \times JR \times 5$
$= 25 \times 4 \times 5$
$= 500$

$P = \frac{\text{Earned Score}}{\text{Maximum Score}} \times 100\%$
$= \frac{461}{500} \times 100\%$
$= 92.2\%$

Based on the analysis of the final calculation results on the usability aspect, a percentage of 92.2% was obtained. Based on Table 6 , which is a table of criteria for interpreting usability aspect scores, the score on the calculation shows that the quality of the designed system is included in the feasibility criteria very feasible.

4.2.3 | Maintainability Testing

Researchers carry out testing on the maintainability aspect operationally directly in the field.

1. Login

   Login failure notifications are available if the user enters an incorrect username or password. The user must enter the correct username or password to access the inventory web page. These conditions can be seen in Figure 2 as a log-in display and Figure 3 as a dashboard page.

2. Description Successful input

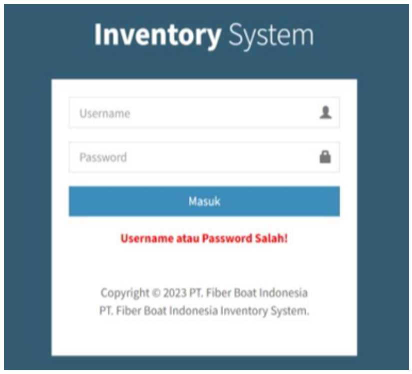

FIGURE 2 Login failure display
Source : *Author*, 2023

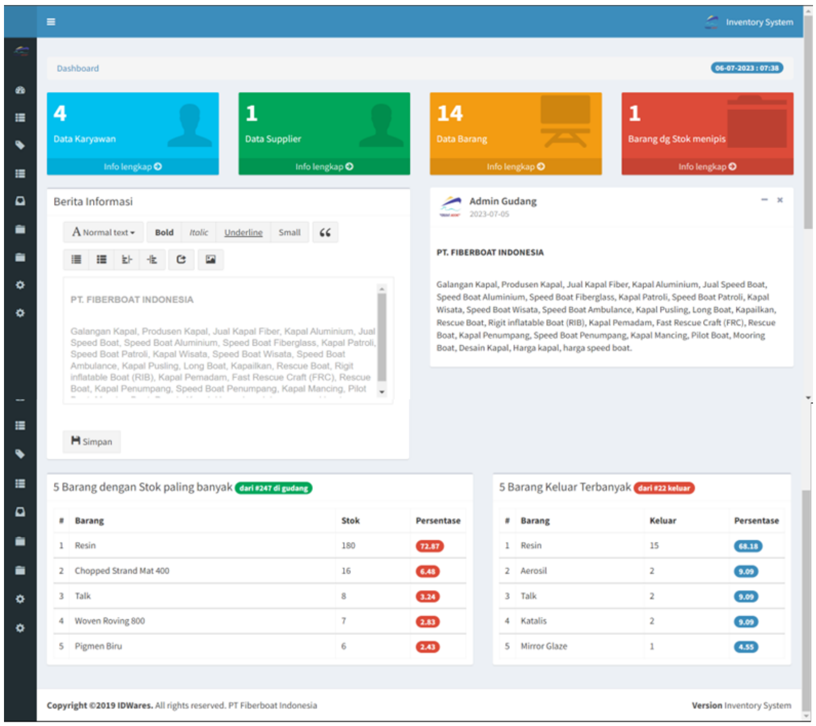

FIGURE 3 Figure 3 Dasboard
Source : *Author*, 2023

There is a notification that the item has been successfully added to the list of incoming items, as shown in Figure 4 below.

After the item is entered into the list of incoming items, there is a notification that the stock has been successfully entered into the system, as shown in Figure 5 below.

3. Description of successful removal of items

There is a notification that the item was successfully entered in the outgoing raw materials list, as shown in Figure 6 below.

After the item is successfully included in the outgoing list, there is a notification that the stock has been successfully issued,d as shown in Figure 7 below.

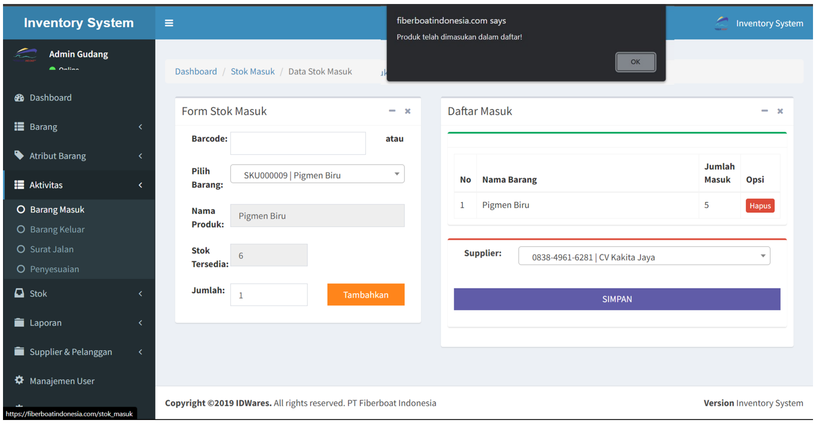

FIGURE 4 Information display of successfully entered stock in the incoming stock list
Source : *Author*, 2023

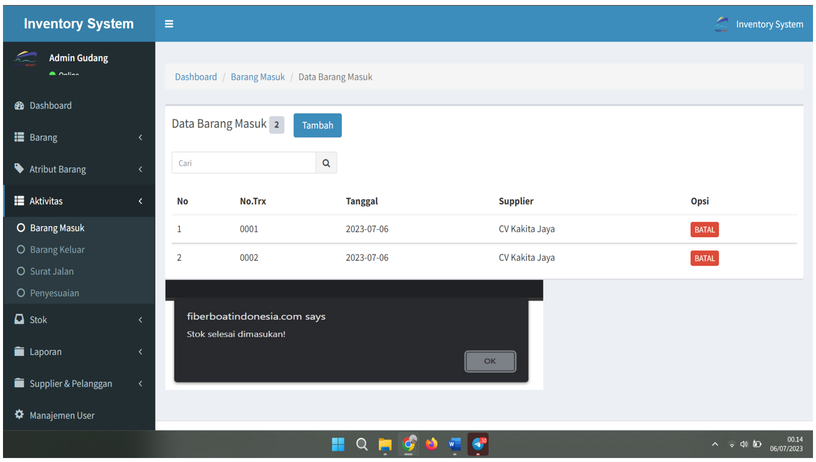

FIGURE 5 Information display on successful stock entry
Source : *Author*, 2023

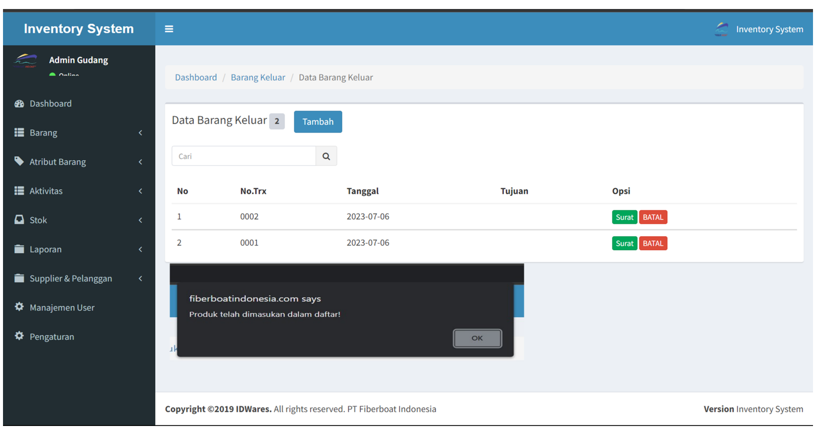

FIGURE 6 Information display on successfully entering stock in the outgoing stock list
Source : *Author*, 2023

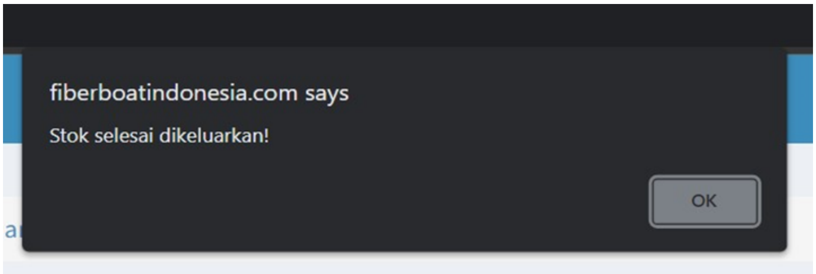

FIGURE 7 Information display of successfully issued stock
Source : *Author*, 2023

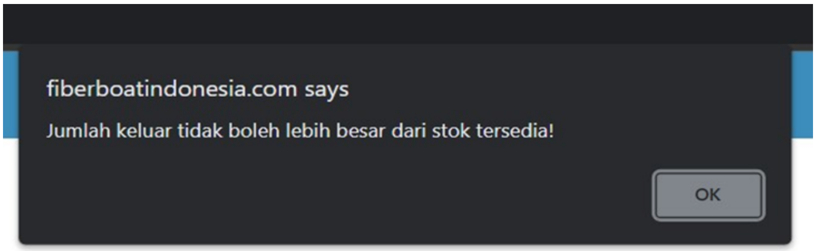

FIGURE 8 Display of stock expenditure amount warning information
Source : *Author*, 2023

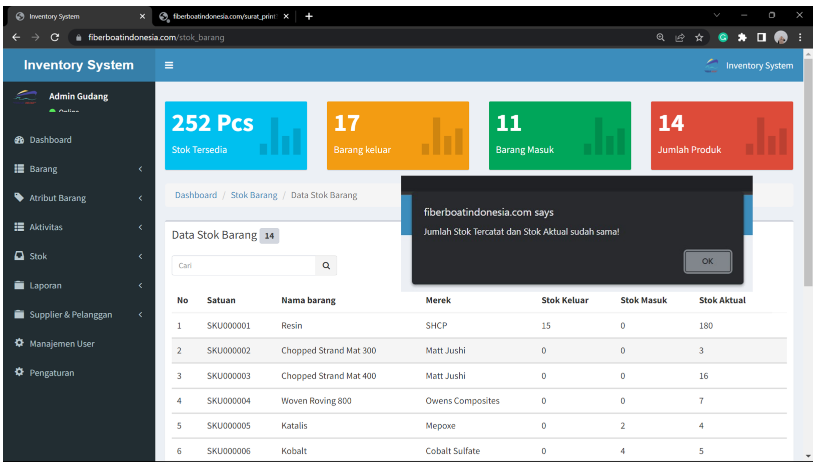

FIGURE 9 Information display of successful stock adjustment
Source : *Author*, 2023

4. Warning that the amount of stock issued is more than the stock available. There is a notification of failure to enter items in the raw materials out list because the number of items issued exceeds the stock available/recorded in the system, as shown in Figure 8 below.

5. Description of system stock adjustment with actual stock There is a conformity notification in the stock adjustment activity that the amount of stock recorded in the system and the actual amount in the warehouse are the same as shown in Figure 9 below.

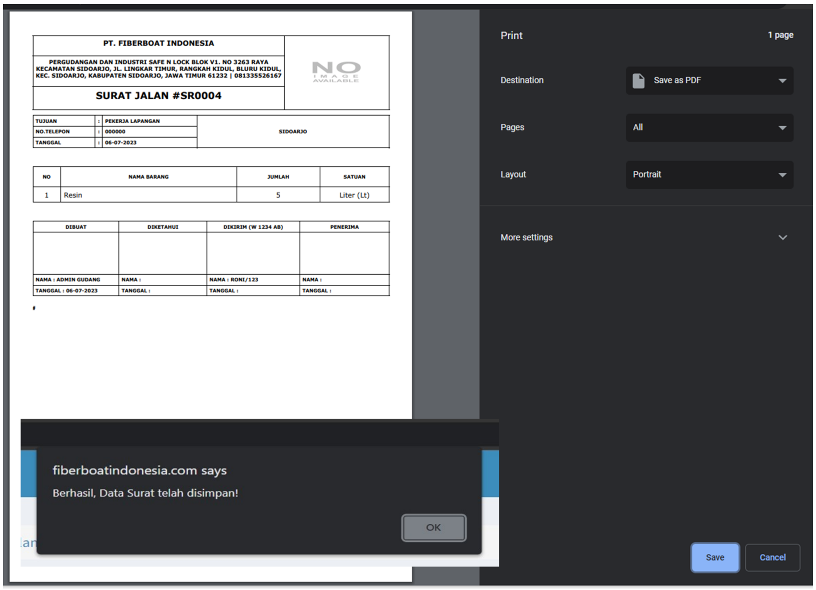

FIGURE 10 Information display for successfully creating a road letter
Source : Author, 2023

TABLE 10 Analysis of Maintainability Test Results

Aspects	Assessment	Results
Instrumentation	There are error alerts, identification, and warning alerts provided by the system.	When the user makes an error, the system will issue a warning and identify the error. As an example in Figure 2 , the user fails to log in with an error identification when entering a username or password, so the user needs to re-enter the username and password accordingly. Another example is in Figure 7 , which warns if the number of items issued exceeds the available stock. Then, in Figure 10 is information the system provides if the user cannot access certain pages, and only special users can access them.
Consistency	Use of one model for the entire system design.	the system designed has one form of the same model. This can be seen in the interface of the designed system, where each web page displays a similar and consistent page.
Simplicity	Ease of management, repair, and development of the system	The test results show that the results of this inventory management information system design are easy to improve and develop because it is made using the PHP MyAdmin framework. You only need to change the system design module components if you want to add or develop.

6. Description of successful road letter creation There is a successful notification after the user or warehouse admin has successfully created a road letter for shipping or delivery of raw materials that have been issued, as shown in Figure 10 below.

The analysis of maintainability testing in accordance with the Land testing instrument is contained in Tab.le.

5 | CONCLUSION

Research on inventory control management of shipyard companies based on the website. Control related to the inventory of raw materials in the warehouse using an analysis of calculations using the Min-Max Stock Level method, which shows the minimum, maximum, and safety stock of the required raw materials. Then, I measured the feasibility of a website-based inventory system using ISO 25010 standards.

Based on the analysis of safety stock calculations using the Min-Max Stock Level method on fiberglass ship raw materials in 2022, the amount of raw material inventory at the end of 2022 is much higher than the safety stock calculation. Raw materials have the greatest usage value, namely resin, which has a final inventory amount in 2022 of 195 liters and a safety stock calculation of 2.08 liters. This shows that the Min-Max Stock Level was not previously run on the shipyard company's raw material inventory, which resulted in an excess inventory of raw materials and caused the company's investment to settle. So that the company purchases raw materials to produce raw materials every time it starts production.

It is hoped that the company will apply the min-max stock level method effectively for the coming period. So that there is no waste of storage space and can order raw materials at the backorder level so that there is no delay in raw materials.

Based on testing based on ISO 25010 carried out on the inventory management information system of the Shipyard Company, the following data is obtained:

1. Based on the functional suitability aspect, a percentage 100% is obtained for each validator.
2. Based on the usability aspect, a percentage of 92.2% was obtained.
3. Based on the maintainability aspect, the shipyard company's inventory management information system is included in the easy-to-maintain category.

The system assessment results based on ISO 25010 suggest that the website-based inventory system is feasible for helping warehouse staff perform more effectively and efficiently.

CREDIT

Arum Prayudi Lestari: Conceptualization, MethodologyWriting – original draft preparation. **Yesica Novrita Devi:** Conceptualization, Methodology, Data Curating, investigation, software. **Wibowo Arninputranto:** Review – Editing Manuscript. **Devina Puspita Sari:** Review – Editing Manuscript.

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