

Analysis of Docking Space Availability in One Web-Based Application for Shipyards in The Samarinda Region

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Abstract— The development of the national shipping industry, especially shipyards, can increase the capacity of the national shipping industry in transporting goods and passengers between islands. Digitalization allows for major changes in business models that allow the creation of new companies that grow very quickly. Digitization can make new jobs easier by using technology in such a way to be used as efficiently as possible. Digitalization has created a business model that allows for a more practical concentration of the technology industry than the traditional business model. Based on information obtained in the field, shipyards in Eastern Indonesia, especially in the Samarinda and East Borneo regions, can improve the local economy, so that the schedule for the production of new building ships in the shipyard must be accommodated, upgraded to be more modern. After observations were made at several shipyards in Samarinda there appeared obstacles in the work carried out including: outsourced labor, area and waters depending on weather factors the work device still using standard technology, with these obstacles, the author tried to analyze the process of availability of shipyards in the Samarinda region using the *fishbone diagram* method of the purpose of the study this and all obstacles or problems faced by the shipyard through *fishbone* analysis and from the results of this research the result to be achieved is to make an application so that the administrative process is neat, repair and shipbuilding in the program properly and scheduled, also including repairs/maintenance, with an application-based or web-based business can help improve the business, because it will make it easier for shipowners to access adequate shipyards that are scheduled and have a location and place that suits the condition of their ships without making many long voyages to get a docking place with uncertainty of schedules.

Keywords—Shipyard, Fishbone, Digitization

I. INTRODUCTION

The number of ships in the Indonesian seas every year is increasing per human demand and needs. Starting from large ships and small ships. Small boats include fishing boats, patrol boats, tugboats, and other commercial vessels. As ships grew, the need for ship repair increased, and many small ships queued up at several docks just for ship repairs. Most of the shipyards are in the western regions of Indonesia, such as the islands of Batam, Medan, Jakarta, Semarang, and Surabaya" (H Zulfikar 2017). While in eastern Indonesia, it is scarce to find shipyards that have large dock spaces, where the need for repair and maintenance in the eastern region is queuing. Not only are state ships queuing, but there are also many commercial ships queuing up for repairs. To support the economy in the eastern part of Indonesia, ships that will carry out docking/ship repair can be carried out on schedule and on time. Suppose shipyards are widely available in eastern Indonesia. In that case, it will significantly support the economy in the region itself. Still, eastern Indonesia's shipyards with space for gross tonnage

are inadequate. It will take cost and time if you have to sail to areas with large dock space to carry out repairs.

Based on the Shipping Law of the Republic of Indonesia Number 17 of 2008 concerning Shipping, "Ship Safety is the condition of ships that meet the requirements of material, construction, building, machinery and electricity, stability, arrangement and equipment including auxiliary equipment and radio, ship electronics, as evidenced by certificates after inspection and testing."

"The classification body is a ship classification agency that regulates ship construction and machinery strength, marine material quality assurance, supervision of ship construction, maintenance, and overhaul in accordance with classification regulations."

This research aims to make it easier for ship owners, service users, contractors, marine inspectors, and marine surveyors to find out the location of ships and the availability of shipyards so that they can be checked in one application without wasting time and energy. Ships do not wait too long with uncertainty about when repairs will be carried out until work at the shipyard can be completed on time.

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II. RESEARCH METHOD

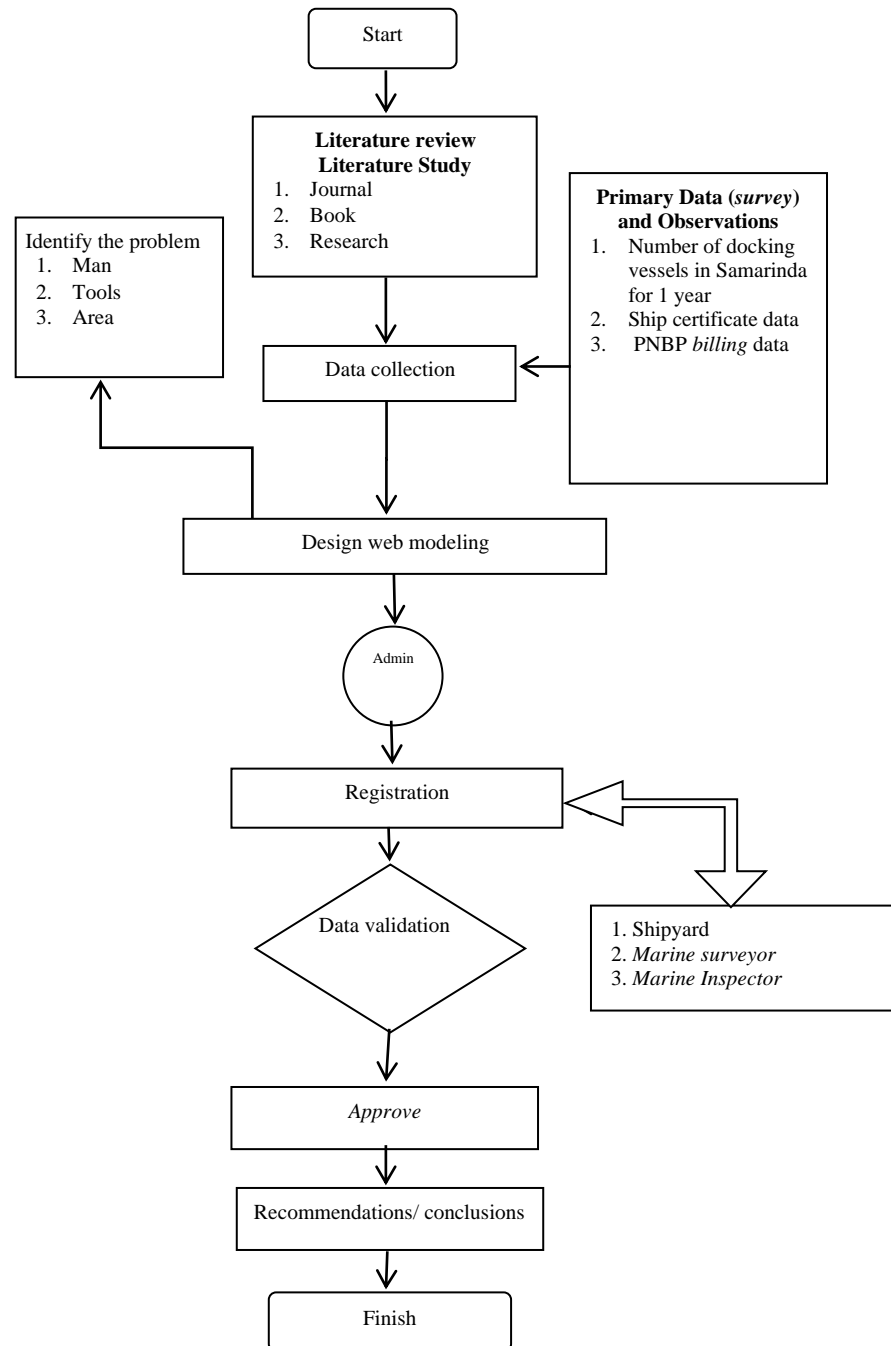


Figure 1. Research Flowchart

A. Problem Identification

Identifying the problems raised in the research work is lifted from the current conditions and problems that may occur. Problems can be known through observation, digging up information or through existing statistical data and their tendencies in the future. From the results of problem identification results, the steps that must be taken in working on the research and the methods applied in solving the existing problem can be determined study, the problem that will be discussed is

the availability of docking space in one web-based application for shipyards in the Samarinda region.

III. LITERATURE STUDIES

After a problem is known, the next stage is literature study. A study of references in journals/papers, applicable regulations, the internet, and supporting material books is carried out at this stage. This literature study uses previous journals as a reference, namely Bisma Adi Faisal (2017) Business

process analysis on the ship repair process in PT. Dewa Ruci Agung Surabaya, Arie Riespalino, et al (2022) Design of Ship Docking Maintenance Scheduling System at PT Peln (Persero), Aqsal Ardiana Timur Raja and Minto Basuki (2022) Development of a Web-Based Ship Repair Management Application System With Aspects of Location and Capacity of Shipyards in 2022, Nurhadi siswanto, et al. (2022) A preliminary web Based Intermediary application Design for ship repair planning services.

A. Data Collection

In this step, data collection is needed for work related to the research to be carried out, where related supporting data on the problem in accordance used is collected for further analysis. The data needed in working on this research are:

- 1) Shipyard data
- 2) Shipyard organizational structure
- 3) Non-Tax State Revenue for renewal of issuance (Kelautan, 2018; RI, 2016)
- 4) Web Design Methods

B. Application Design

The next stage is the design of the application. The interface of the application to be designed must follow the approved application. With the application, it will be a direction and guide for programmers to design applications so that programmers do not need to change

the application's design. To support the concept of flexibility where this application can be accessed from all devices (Smartphones, Laptops, Personal Computers), the application must have a web architecture, which will be designed with web programming languages, namely HTML and PHP. In addition, because this application is a data exchange or data exchange, a database is also needed to be created with the MySQL database system. Technical instructions for using the Online App Features can see in figure 2.

The account registration flow is docked until the certificate is issued

Owner Surveyor (OS)

- 1) Create a company account
- 2) Input data of all ship certificates
- 3) Waiting to *Approve docking space* availability Shipyard
- 4) Receive *docking space* request notifications
- 5) Certificate data validation
- 6) *Docking space* available on specified dates
- 7) Notify the *Owner surveyor* (OS)
- 8) After the docking process, the docking report is attached;

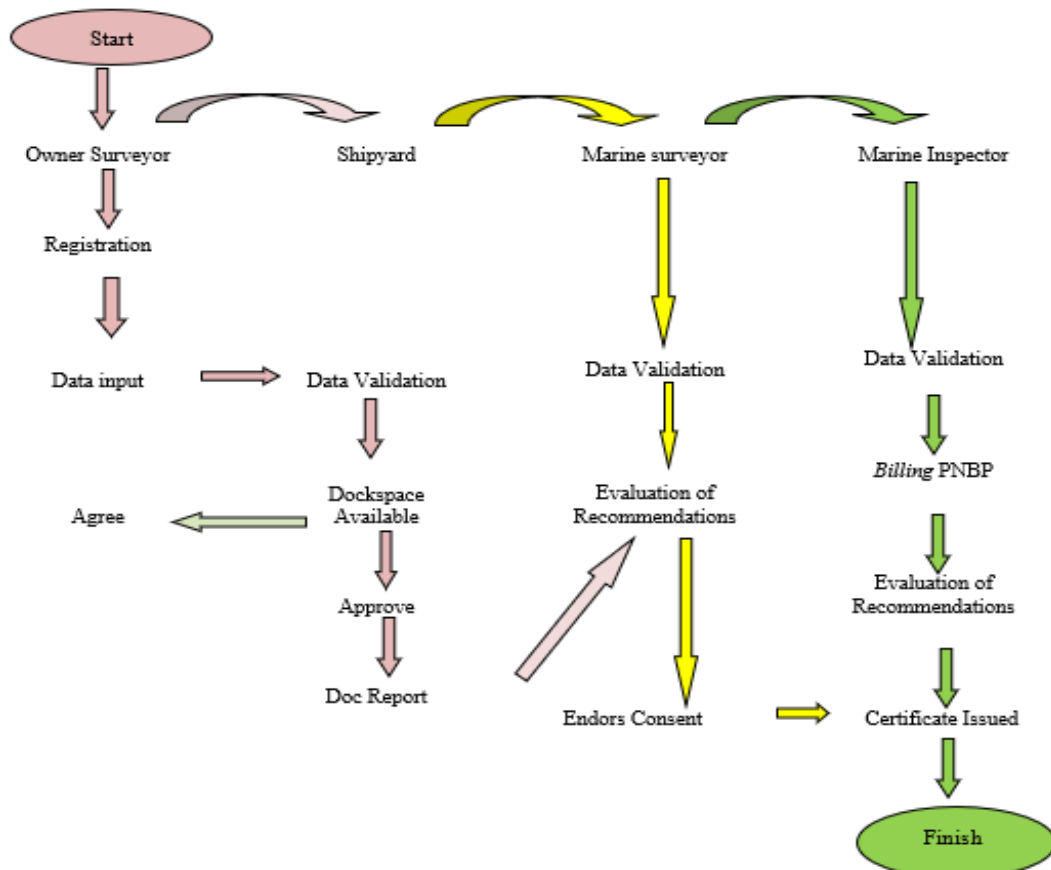


Figure 2. Technical instructions for using the Online App Features

Marine surveyor (class)

- 1) Accept a dock request request
- 2) Data validation (whether the certificate has been included in the *time window Intermediate* survey, annual survey, special survey, etc.)
- 3) Dock report received from shipyard
- 4) Evaluation of recommendations
- 5) Class certificate *endorsement* process (*Hull, Machinery and load line certificate*)

Marine Inspector (Kemenhubla)

- 1) Accept a dock request request
- 2) Data validation (any certificates that will be processed)
- 3) Issuance of Non-Tax State Revenue Billing (PNBP)

- 4) Dock report received from shipyard
- 5) Evaluate recommendations
- 6) *Class certificate endorsement* process accepted
- 7) Certificate issuance process in accordance with Non-Tax State Revenue (PNBP Billing) paid
- 8) Finish

C. Application Trial

This trial focuses on testing the main functions of the web application, this test is carried out directly by users involved in the shipbuilding industry, that is, the shipyard that plays a role and is responsible in the work on ship repair projects. The main purpose of testing the application is to ensure the shortcomings of the application before being used by the shipowner.

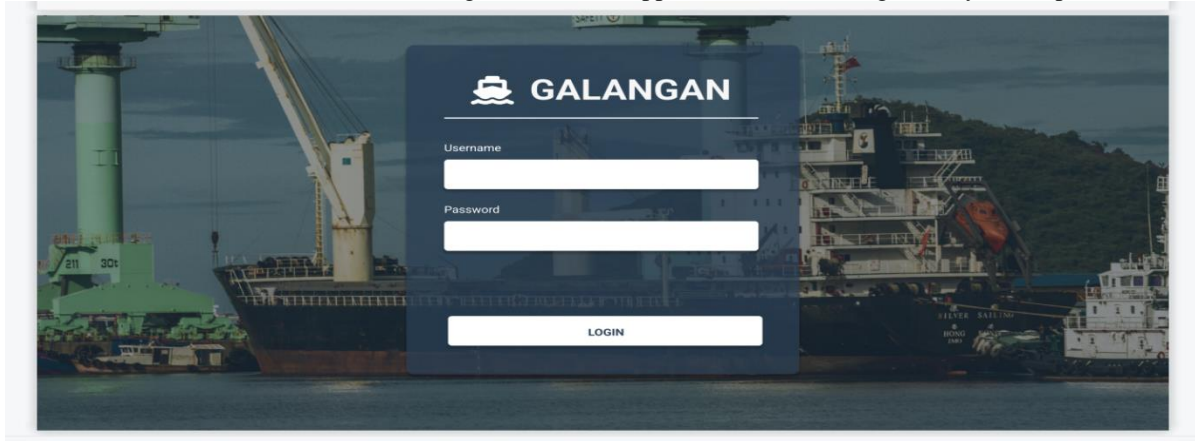


Figure 3. Initial account creation view

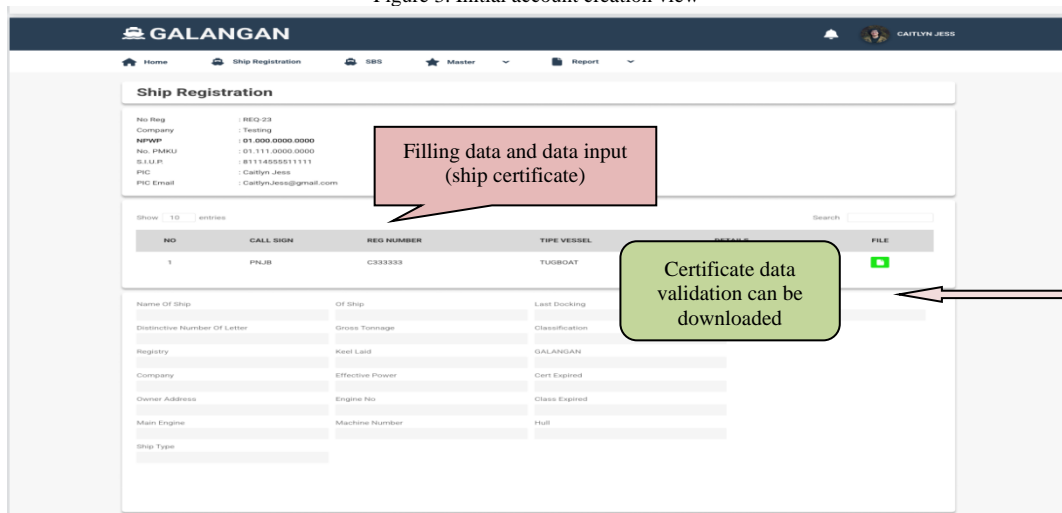


Figure 4. Data filling and account input

IV. RESULTS AND DISCUSSION

A. Research Analysis

Research with the title "Analisa availability of docking space in one web-based application for shipyards in the Samarinda region, Design of web-based application System Process development, pada The process of availability of dock kapal" is carried out by the environmental area of port interest Samarinda- East Kalimantan, in determining the strategic policy of the process Analysis of the availability of ship docking space based on the results of *fishbone* analysis on proses

analysis of the availability of docking space shipyards in the Samarinda region, Based on the results of observations made on several dock in Samarinda can be known some problems in the ship docking space availability process As for the process of availability of docking space in Samarinda area includes ship acceptance process activities and ship repair work.

B. Ship Entry

In general, the systematic process in the process of entering ships in a separate shipyard can be described in several items as figure 5.

C. Analysis of Research Results

Analysis of research results in the form of analysis of the Samarinda shipyard process based on the shipyard procedures above, was carried out with several analysis steps based on the research methods used and determined in this study, namely (RI, 1986):

1) Identifying problems in the process of repairing ships.

2) Determination of the cause of the main problem (the target of the main problem).

3) Setting improvement targets.

In identifying the problem, the first is to find the problem, and the second is to choose the problem from the many alternative problems that have been found. One of the methods used to find problems is through brainstorming. The following are the results of problem identification obtained through Brainstorming based on the results of interviews conducted with companies, shipyards, marine surveyors and marine inspectors, then several problems can be obtained related to the availability of docking space in the Samarinda Region (R. Indonesia, 2014).

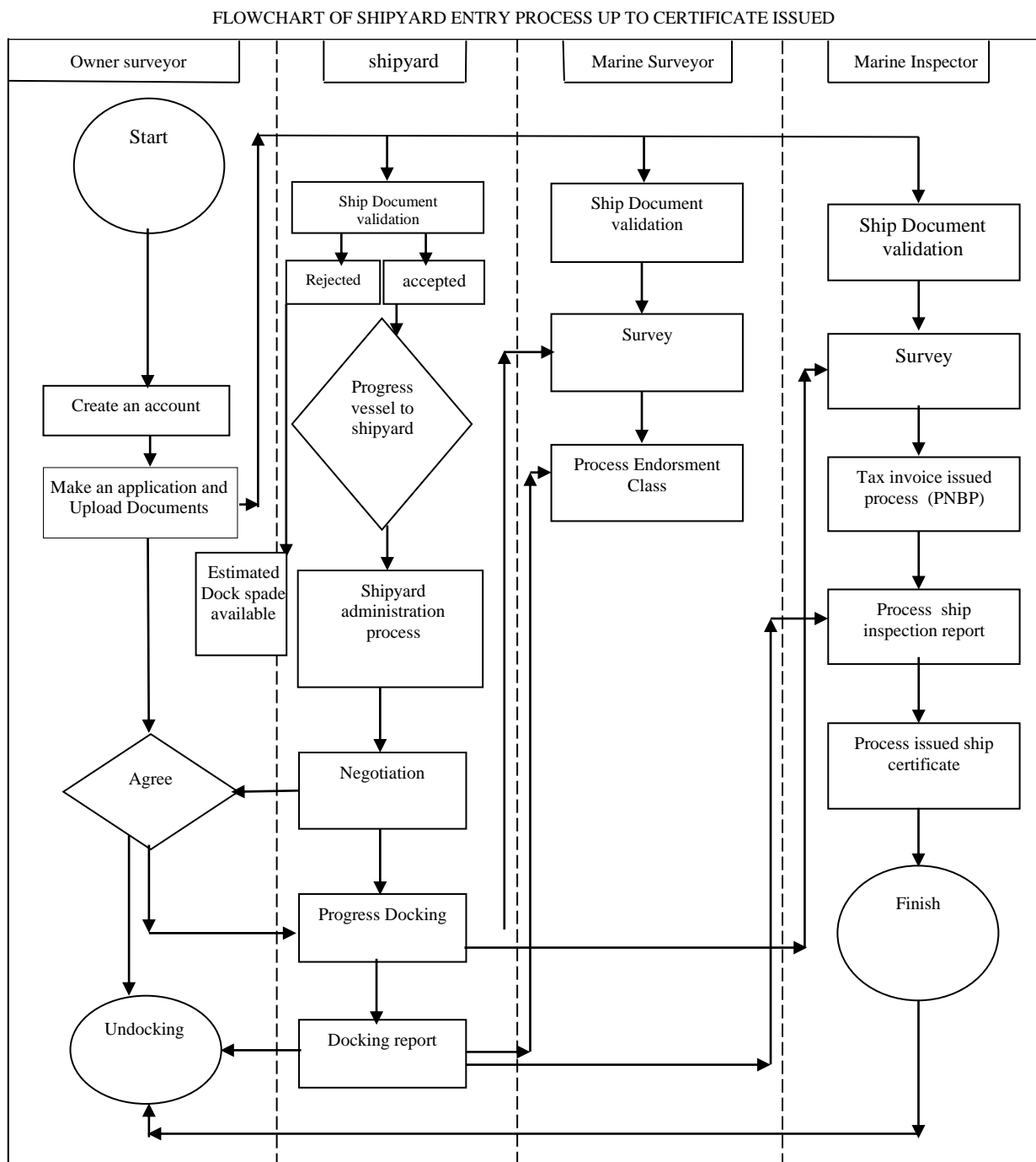


Figure 5. Cross Functional Flowchart Ship Entry Process

TABLE 1.
PROBLEM IDENTIFICATION

Observed Factors	Problems That Occur
a. Human	- Shipyard companies use the services of third parties/Outsourcing - The workforce does not have standardization and certificates or training - Don't have insurance
b. Material	- Delay in delivery of materials (paint, steel plate) - Lack of materials needed
c. Standards and procedures	- Availability, Personal protective equipment (health, safety, work) - Unfit resting place
d. Machinery and equipment	- Tool limitations - Using small workshop standard tools - Lack of equipment maintenance - The variety of equipment required is less
e. Environment	- Traditional shipyard - Flood - Facilitate rest and sanitation

Based on the identification of the problem or the results of brain storming above, it can be seen that several factors affect the performance of the Shipyard in Samarinda in the process of entering the Samarinda shipyard, i.e., Human, Material, Process, and Method, Machine and Environment, which are described and selected as the main causal factors. as follows.

1) Man (Man or Labor)

In this factor, it is known the main reason is the fact that the personnel or human resources of the Samarinda shipyard in doing its work :

a) Outsourcing Work.

Outsourced workers sometimes change companies because the standard salary demands do not match the job description in the field. Switching often occurs misunderstandings and overlaps in the next job, leading to work and overtime not being optimal.

b) The workforce does not have standard certification or training

Subcontracting job acceptance usually occurs when there is a demand for employment, turnover of workers, employment contracts that are not accordingly, and sometimes training and certificates are not all owned by workers. In this case, the workforce's main duties, functions, and responsibilities are not optimal.

c) Workers are not insured

Professionals, workers, and companies need to improve their work performance in terms of efficiency and time efficiency. Still, suppose it is not supported by insurance. In that case, workers who are sick and do not have insurance sometimes are hospitalized longer than the insured, and this is what obstacles and obstacles face by shipyards and outsourced workers.

d) Haven't used databases and web design

Employees have not used information technology to facilitate work in the dock, so access to work in the dockyard has not been fully coordinated quickly.

2) Material

Delays in the Delivery of Materials occur when there is no support for capital from creditors also determines

the speed of work in the shipyard. The delivery of materials is also related to Weather while on the way. The corridor to the shipyard also determines the need for materials, such as ship paint and varnish. The steel plate can be delivered on time so that the delivery of materials to the shipyard is not delayed.

3) Standards and Procedures

Workers do not have adequate personal protective equipment and inadequate resting places, and fire extinguishers are still not available in shipyard.

4) Machinery and equipment

Limited heavy equipment such as cranes and wheel alignment machines require companies to spend more to rent cranes and repairs using third parties di other shipyards, also Lack of equipment maintenance, obviously determine the quantity and quality of work. In the observation, researchers found that there are still tools that are not yet in mode and tools that are damaged, making the work less efficient and efficient.

5) Environment

Many shipyards are still traditional, so they still rely on waters, Floods sometimes cause work delays, Facilities rest and inadequate sanitation, The proximity of the environment greatly supports the quality of work and determines the efficiency and effectiveness of work, so that a clean and comfortable workplace affects the spirit and comfort of an in shipyards, to achieve several galangan in the Samarinda region, sometimes have to pass 4 bridges with a maximum air draught height of 22 meters, and not all The mast mast of the ship can be raised and lowered. Transfer of the function of the shipyard in the event of a sale and purchase with the lain party results in the company having to take care of new documents to get recommendations for the shipyard.

Based on the problem identification activities and root cause determination of the main performance problems of Samarinda Shipyard, the results of the fishbone diagram obtained from the company's data processing are as follows:

D. Identify the problem

Fishbone analysis lack of shipyard availability

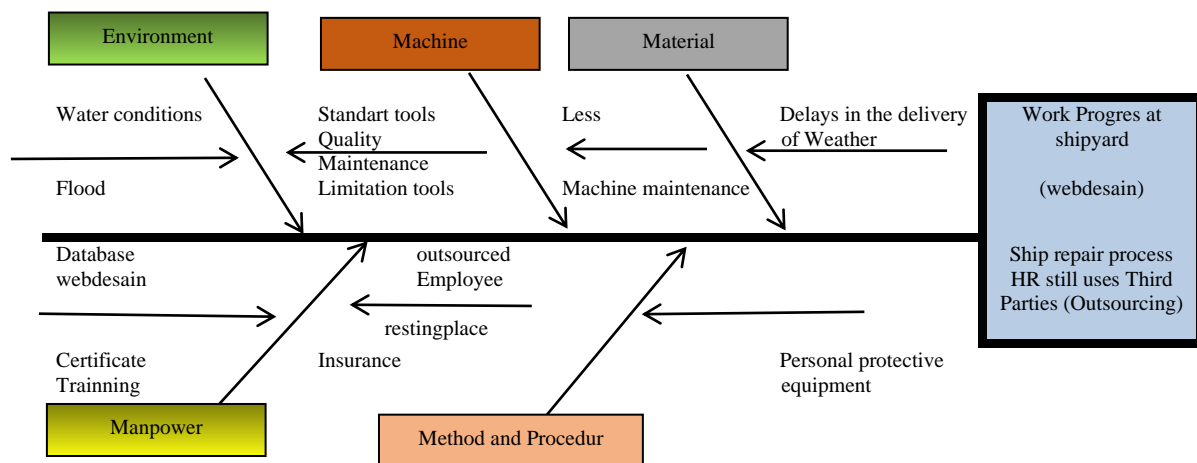


Figure 6. Fishbone Analysis of Lack of Shipyard Availability

TABLE 2.
RESULTS AND RECOMMENDATIONS

Problems	Solution
Manpower	
❖ Shipyard companies use the services of third parties/Outsourcing	❖ Incoming ships with collapsible masts
❖ Tenaga work does not have standardization and certificates or training	❖ Waiting for the highest tide
❖ Don't have insurance	❖ Graving dock
	❖ Use of database and web design
Materials	
Delay delivery material (paint, steel plate)	More established purchase order planning and estimated delivery estimates
Standards and procedures	
❖ Availabilityl at personal protective equipments (health, safety, work)	❖ Providing personal protective equipment for workers
❖ Unfit resting place	❖ Hold certifications and trainings
	❖ Providing a decent resting space
Machinery and equipment	
❖ Tool limitations	❖ Shipyard Starts Investing With Heavy Equipment Purchase
❖ Using the standard tools of a small workshop	❖ maintenance ofperalatan using the asset register system
❖ Lack of equipment maintenance	
❖ The variety of equipment that dibuis lacking	
Environment	
❖ Location of the shipyard with a small depth of draft	❖ Incoming ships with collapsible masts
❖ The height of the bridge traveled with a maximum of 22 meters of dr aught water	❖ Waiting for the highest tide
❖ Air tides	❖ Graving Dock
	❖ Floating Dock

E. Results and Recommendation

1) Based on the results of data analysis using *Fishbone* Analysis, several conclusions can be discussed as follows, namely Analysis in business processes at the Shipyard in Samarinda some factors affect the business processes in the company Based on this method, identify several problems that cause performance problems in the business process of the shipyard shipyard in Samarinda, namely Employees feel saturated, negligence, labor less understanding, Less skilled labor, Employees not obeying procedures, Lack of communication, Limited tools, Lack of equipment maintenance, Lack of responsibility, Less disciplined labor (M. P. L. R. Indonesia, 2020).

2) Based on the problem approach using *Fishbone* analysis along with problem management, the Shipyard in Samarinda determines policies in improving performance by: There needs to be decent and adequate employee incentives and promotion of positions, Making performance-based quality manuals, It is necessary to be given briefings and job coaching by direct supervisors, It is necessary to make a checklist of inspections, Preparation in making documents and work schedules System improvement work management with an accurate controlling system, Establishing cooperation with outside parties that are profitable, Revamping and switching work devices to automatic and more sophisticated technology, Placing workers according

to their field of expertise, Making quality manuals for workers (RI, 1986).

- 3) The company conducts training and education as well as seminars.
- 4) The recommendation for improvement from the analysis results is to make a computerized application and a database consisting of making correction service documents, purchase order and bill payment letters.

The general description related to system repair is as follows (RI, 1980):

A database is a collection of information stored on the computer of an organization or company that is organized using certain methods so that it can meet the optimal information needed by users The benefits are:

- 1) As the main or important component in an information system because it is the basis for providing information
- 2) Determining the quality of information that is fast, accurate and relevant
- 3) Overcoming difficulties in accessing data on the advantages and disadvantages of Using

Web design recommendations are:

Pros of web design

- a. In data storage becomes more structured
- b. If you want to use existing data faster
- c. More secure data in Database storage

Disadvantages of web design

- a. Requires a long time to implement
- b. Requires new learnings from employees

F. Ship Data in Indonesia

Ships sailing in Indonesian waters are divided into 3 (three) groups, namely Freight Ships, Pioneer Ships and Fishing Ships. From the results of discussions through the Coordination Meeting Forum with the Indonesian Classification Bureau (ICB) in Jakarta, May 9 2016 and the results of the Maritime Congress I, in Surabaya, December 1 to 3 2016, in Surabaya (Widarto, 2017), then ships are grouped based on ship class level certification as shown in Table 4.1, that there are 55% types of fishing vessels, 44% types of cargo ships and 5% types of passenger ships (Perhubungan, 2009; Utomo, 2016).

TABLE 3.
TYPES OF SHIPS SAILING IN INDONESIA

Kind	Sum Of Vessel	Total Gross Tonnage
Passenger ships	4965	2460044
Fish Boats	51077	2525871
Merchant ships	44887	44476966
Total	100949	52462870

Source : Ministry of Sea Transportation Republic of Indonesia 2023

Based on the data shown in Table 4, that there are 75 % Types of Passenger ships with GT 7- 174, 14 % with GT > 500, and 11 % with GT 175- 499

TABLE 4.
TYPES OF PASSENGER SHIPS

Kind	Range	Sum	Total GT
Passenger ships	GT 7- 174	3760	189248
	Gt 175- 499	528	160962
	>500	677	2109834
Total		4965	2460044

Source : Ministry of Sea Transportation Republic of Indonesia 2023

Based on the data shown in Table 5, there are 55 % Types of fish boats with GT 7- 29, 34 % with GT 30- 99, 10 % with GT100- 299 and 1 % with GT > 500.

TABLE 5.
TYPES OF FISH BOATS

Kind	Range	Sum	Total GT
Fish Boats	GT 7 - 29	27802	539182
	GT 30-99	17496	909646
	GT 100- 299	5301	824428
	>300	478	252615
Total		51077	2525871

Source : Ministry of Sea Transportation Republic of Indonesia 2023

Based on the data shown in Table 6, that there are 53 % Types of merchant ships with GT 7- 174, 37 % with GT > 500, and 10 % with GT 175- 499

TABLE 6.
TYPES OF MERCHANT SHIPS

Kind	Range	Sum	Total GT
Merchant Ship	GT 7- 174	23110	1528528
	GT 175- 499	9026	2483584
	>500	12751	43410789
Total		44887	47476955

Source : Ministry of Sea Transportation Republic of Indonesia 2023

G. Economic Analysis in Certificate Renewal

TABLE 7.
 SHIPPING AND TAX RECEIPTS

No	Types of Non-Tax State revenues	Units	Fare
1.	Inspection and Certification of Load Line Safety and Prevention of Maritime Environmental Pollution		
	1. GT 7 to 325 For People's Voyages	Per check	IDR 25,000
	2. GT 7 to 35	Per check	IDR 50,000
	3. GT 36 to 174	Per check	IDR 75,000
	4. GT 175 to 499	Per check	IDR 300,000
	5. GT 500 to 3000	Per check	IDR 1,000,000
	6. More than GT 3000	Per check	IDR 1,250,000
2.	Issuance of Certificate of Safety of Loading Lines and Prevention of Pollution of the Maritime environment		
	1. GT 7 to 325 For People's Voyages	Per Certificate	IDR 25,000
	2. GT 7 to 35	Per Certificate	IDR 25,000
	3. GT 36 to 174	Per Certificate	IDR 50,000
	4. More than GT 175	Per Certificate	IDR 170,000
3.	Endorsement of the Certificate of Safety of Loading Lines and Prevention of Pollution of the Maritime environment		
	1. GT 7 to 325 For People's Voyages	Per Certificate	Rp12,500
	2. GT 7 to 35	Per Certificate	IDR 12,500
	3. GT 36 to 174	Per Certificate	IDR 25,000
	4. More than GT 175	Per Certificate	IDR 85,000
4.	Sea Trial of Ships	Per ship	IDR 1,000,000
5.	Compass adjuster Reward Testing	Per	IDR 500,000
6.	Implementation of Audit and Issuance of Document Of Compliance (DOC) and Safety Management Certificate (SMC) as well as Endorsement		
	1. With ownership of 1 (one) Ship		
	a. Up to GT 35	Per Audit	IDR 150,000
	b. GT 36 to 174	Per Audit	IDR 300,000
	c. GT 175 to 499	Per Audit	IDR 750,000
	d. GT 500 to 3000	Per Audit	IDR 1,000,000
	e. More than GT 3000	Per Audit	IDR 1,250,000
	2. Ownership of 2 to 5 Ships		
	a. Up to GT 35	Per Audit	IDR 300,000
	b. GT 36 to 174	Per Audit	IDR 600,000
	c. GT 174 to 500	Per Audit	IDR 1,000,000
	d. GT 500 to 3000	Per Audit	IDR 1,300,000
	e. More than GT 3000	Per Audit	IDR 1,500,000
	1. Ownership 6 to 10 Ships		
	a. GT 36 to 174	Per Audit	IDR 900,000
	b. GT 175 to 499	Per Audit	IDR 2,250,000
	c. GT 500 to 3000	Per Audit	IDR 3,000,000
	d. More than GT 3000	Per Audit	IDR 3,600,000
	2. Ownership of 11 to 15 Ships		
	a. GT 36 to 174	Per Audit	IDR 1,150,000
	b. GT 175 to 499	Per Audit	IDR 2,500,000
	c. GT 500 to 3000	Per Audit	IDR 3,250,000
	d. More than GT 3000	Per Audit	IDR 3,850,000
	3. Ownership of 16 to 20 Ships with total GT		
	a. GT 36 to 174	Per Audit	IDR 1,350,000
	b. GT 175 to 499	Per Audit	IDR 2,750,000
	c. GT 500 to 3000	Per Audit	IDR 3,500,000
	d. More than GT 3000	Per Audit	IDR 4,100,000
	4. Ownership of 21 to 25 Ships with total GT		
	a. GT 36 to 174	Per Audit	IDR 1,600,000
	b. GT 175 to 499	Per Audit	IDR 3,000,000
	c. GT 500 to 3000	Per Audit	IDR 3,750,000
	d. More than GT 3000	Per Audit	IDR 4,350,000
	5. Ownership of 26 to 30 Ships with total GT		
	a. GT 175 to 499	Per Audit	IDR 3,250,000
	b. GT 500 to 3000	Per Audit	IDR 4,000,000
	c. More than GT 3000	Per Audit	IDR 4,600,000
	6. Ownership of 31 to 35 Ships with total GT		
	a. GT 175 to 499	Per Audit	IDR 3,500,000
	b. GT 500 to 3000	Per Audit	IDR 4,250,000
	c. More than GT 3000	Per Audit	IDR 4,850,000
	7. Ownership of more than 35 Ships with total GT		
	d. GT 175 to 499	Per Audit	IDR 4,000,000
	e. GT 500 to 3000	Per Audit	IDR 4,500,000
	f. More than GT 3000	Per Audit	IDR 5,000,000

No	Types of Non-Tax State revenues	Units	Fare
7.	Implementation of Audit Certificate of Ship Operation Safety Management System/Safety Management Certificater (SMC)		
	a. Up to GT 35	Per Audit	IDR 100,000
	b. GT 36 to 174	Per Audit	IDR 175,000
	c. GT 175 to 499	Per Audit	IDR 250,000
	d. GT 500 to 3000	Per Audit	IDR 450,000
	e. More than GT 3000	Per Audit	IDR 700,000
8.	Issuance of Certificate to the owner or operator of the Document Of Compliance (DOC) and Certificate of Ship Operation Safety Management System (SMC)		
	a. Up to GT 35	Per Certificate	IDR 50,000
	b. GT 36 to 174	Per Certificate	IDR 75,000
	c. GT 175 to 499	Per Certificate	IDR 100,000
	d. GT 500 to 3000	Per Certificate	IDR 150,000
	e. More than GT 3000	Per Certificate	IDR 200,000
9.	Endorsement to the owner or operator of the Safety Management System Nonconformity Document. Document Of Compliance (DOC) and Certificate of Ship Operation Safety Management System/Safety Management Certificate (SMC)		
	a. Up to GT 35	Per Certificate	IDR 25,000
	b. GT 36 to 174	Per Certificate	IDR 37,500
	c. GT 175 to 499	Per Certificate	IDR 50,000
	d. GT 500 to 3000	Per Certificate	IDR 75,000
	e. More than GT 3000	Per Certificate	IDR 100,000

Source : Government Regulation Number 16 of 2015 (Kelautan, 2018; RI, 2016)

H. Economic calculation of the issuance of certificates in the framework of renewal of ship certificates

Example With Vessel Gross Tonnage 260

No	Types of Certificates	A	B	C
		Examination	Publishing	Endorsement
1	Safety Construction Certificate	√	√	-
2	Safety Equipment Certificate	√	√	-
3	Safety Radio Certificate	√	√	-
4	National Certificate of Pollution Prevention (NCP)	√	-	√
5	Anti Fouling System Certificate	√	√	-
6	Temporary Load Line Certificate	-	-	-
7	Ship Seatrial	√	-	-
8	Compass Adjuster	√	√	-
9	Document Of Compliance (DOC)	-	-	-
10	Safety Management Certificate (SMC)	-	-	-

Safety Construction Certificate	= A2 (1.4) + B2 (2.2)	A9 : Examination Document of compliance
Safety Equipment Certificate	= A1 (1.4) + B1 (2.2)	A10 : Examination Safety Management Certificate
Safety Radio Certificate :	= A3 (1.4) + B3 (2.2)	B1 : Publishing Construction certificate
National Certificate of Pollution Prevention (NCP)	= A4 (1.4) + C4 (3.3)	B2 : Publishing Safety Equipment Certificate
Anti Fouling System Certificate:	= A5 (1.4) + B5 (2.2)	B3 : Publishing Safety Radio Certificate
Seatrial and Compasseren	= A7 (4) + AB8 x (5)	B4 : Publishing National Certificate of Pollution Prevention (NCP)
Nomenclature :		B5 : Publishing Anti Fouling System Certificate
A1 : Examination Construction certificate		B6 : Publishing Temporary Load Line Certificate
A2 : Examination Safety Equipment Certificate		B7 : Publishing Ship Seatrial
A3 : Examination Safety Radio Certificate		B8 : Publishing compass adjuster
A4 : Examination National Certificate of Pollution Prevention (NCP)		B9 : Publishing Document of compliance
A5 : Examination Anti Fouling System Certificate		B10 : Publishing Safety Management Certificate
A6 : Examination Temporary Load Line Certificate		C1 : Endorsment Construction certificate
A7 : Examination Ship Seatrial		C2 : Endorsment Safety Equipment Certificate
A8 : Examination compass adjuster		C3 : Endorsment Safety Radio Certificate
		C4 : Endorsment National Certificate of Pollution Prevention (NCP)
		C5 : Endorsment Anti Fouling System Certificate
		C6 : Endorsment Temporary Load Line Certificate
		C7 : Endorsment Ship Seatrial
		C8 : Endorsment compass adjuster
		C9 : Endorsment Document of compliance
		C10 : Endorsment Safety Management Certificat

V. CONCLUSION

From all the stages of research that have been carried out, conclusions can be drawn, as follows:

1. The development of shipyard application development, especially web design, can be used as the next business progress
2. Admin personnel (owner surveyor) can use one registered email, so as not to create repeated IDs and Passwords
3. In thereporting system attached to the ship dock report online is an information system that provides convenience for related parties in the process of issuing certificates and the classification Bereau endorsement process, the data provided can facilitate smooth work and provide facilities for business people to monitor the status of ship operational developments in a transparent, detailed and detailed manner.
4. An online ship maintenance data reporting system that is designed to be integrated with the company's database which will improve performance and convenience in making and designing other systems, and can be accessed by related parties to minimize the use of paper and support papperless movements
5. Knowing and Facilitating how much it costs in the process of paying Non-Tax State Income (NTSI)

Suggestions that can be given for the next step of development or research, as follows:

- 1) Company investment in the form of human resources, adding personnel in the Information and technology field,
- 2) Work support tools and work workshops, adequate Information and technology equipment
- 3) Database design is needed in the development of web design both programmatically and visually with an interface design that is easy to use and can avoid data theft
- 4) It is necessary to develop a web modelling design system that must follow standards, so that it is easy to access which can save time and can be profitable and easy to implement in the next research

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