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Research Paper

Optimization of Enterprise Resource Planning (ERP) Applications on The Crew Contract Extension System at PT. Sinarmas LDA Maritime

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Abstract

Technological developments are needed in today's digital era because they can help all human activities. PT. Sinarmas LDA Maritime created an Enterprise Resource Planning (ERP) application. The ERP application is used to simplify employees' work in inputting data and monitoring the working period of the crew and the validity period of documents. However, in using the ERP application, there are obstacles to the crew contract extension system, which still uses paper forms, so inputting data into the application takes a long time. Besides that, the ERP application is very dependent on the internet network. This study aims to determine the constraints in optimizing Enterprise Resource Planning (ERP) applications on the crew contract extension system with the addition of problem solvers. This research method uses a qualitative description approach by conducting observations, interviews, literature studies, and documentation directed at competent and directly involved informants and using SWOT analysis techniques to determine strategic factors for optimizing Enterprise Resource Planning (ERP) applications by linking research data results. Based on the research that has been done, it was found that optimizing the Enterprise Resource Planning (ERP) application in the crew contract extension system is filling in crew data that still uses paper forms and is dependent on the internet network. Using a paper form is changed to using a G-form so that the input of crew data for extended counters is more effective and efficient. As well as the need for outreach to the ship's crew in order to know the stages of filling in the data. The results of the SWOT analysis show that the Enterprise Resource Planning (ERP) application is in a progressive strategy position, meaning that obstacles in optimizing ERP applications can be overcome because the company is able to take advantage of its strengths and opportunities.

Keywords *Enterprise Resource Planning (ERP) applications, Vessel Crew Contract Extension, PT. Sinarmas LDA Maritime*

INTRODUCTION

Industry 4.0 is in dire need of technological developments in the business world, including transportation. With the emergence of the Industrial Revolution 4.0, there will be many technologies that can help humans work to be more productive in companies, speed up work processes, and maximize working hours. From the explanation of this revolution, industry 4.0 is a new revolution that has emerged, a technology-based revolution that can directly assist humans in completing work; the emergence of new technology will impact the world of industry, business, and human resources. It is not only the technology in the factory that will change, but also a company's management system, such as technology, business, and human resource systems, will play a role (Savitri, 2019). So, with the application that has been made, it can facilitate a job, considering the effectiveness and efficiency of work.

PT. Sinarmas LDA Maritime has created an application that can support employees' work called Enterprise Resource Planning (ERP). This application is expected to facilitate employees' work because it uses digital services such as storing data or documents for uploading and downloading, making it easier to monitor ship crew documents so they do not expire. An example of using the application is when uploading and downloading documents, the data will be stored in the ERP application.

In addition, contract extensions carried out by employees in the use of Enterprise Resource

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Planning (ERP) applications have problems experienced by users because the application has not been optimal. It is not yet optimal because this application depends on internet access. The application's relationship with the internet is one unit, so failure in inputting data for contract extensions becomes an obstacle.

Information obtained by researchers when the crew extended the contract. The crew fills out several forms, which will then be inputted by the employee one by one according to the text box in the application, which will then be used as data or information for the crew who will extend the contract. The input starts from personal data, crew certificates, and the experience of the sailing crew. Enterprise Resource Planning (ERP) applications can monitor crew contract periods and certificate expirations.

Competent ship crews can support the success of the shipping process. Because of this, PT. Sinarmas LDA Maritime has crew requirements or conditions that comply with shipping standards. Based on the background explained by the researcher, the researcher wants to research "Optimization of Enterprise Resource Planning (ERP) Applications in the Crew Contract Extension System at PT. Sinarmas LDA Maritime". Based on the background previously described, the main issues to be discussed by researchers in this study are:

1. What are the constraints experienced in optimizing the Enterprise Resource Planning (ERP) application in the crew contract extension system process?
2. What are the efforts to overcome the obstacles experienced in optimizing ERP applications in the crew contract extension system?

LITERATURE REVIEW

Description of Theory

a. Optimization

Optimization comes from the word optimal, which means the best or highest. Optimizing means making the best or the highest. While optimization is the process of optimizing something, in other words, the process of making something the best or highest. So, optimization here means trying optimally for the best results to achieve in implementing educational facilities and infrastructure management that are in line with expectations.

b. Application

An application is software that allows you to perform certain tasks. Apps used on desktop or laptop computers are sometimes called desktop apps, while those for mobile devices are called mobile apps. Applications are software used for specific purposes, such as processing documents, managing Windows and games, and so on. Several applications that are combined together into a package are sometimes referred to as a package or application suite (Hakim, 2018).

c. Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is a software designed using the internet network. This software operates on storage systems and data processing. Enterprise Resource Planning (ERP) is designed to make it easier to access, store, and exchange data between several computers that can be accessed remotely. By using Enterprise Resource Planning (ERP), employees can access it anywhere and anytime, making it easier for employees to respond to requests from ship owners in a timely manner, and can increase employee performance productivity, especially in monitoring crew documents and inputting crew data.

d. System

The system is a collection of related elements that work together to process the input addressed to the system and process the input to produce the desired output (Kristanto, 2018: 1).

e. Contract extension

Agreement/contract extensions are generally used when an agreement ends, but the parties want the ended engagement (for example, an employment relationship) to be continued. Thus, the parties agreed to extend the agreement/contract.

f. Crew/crew members

Ship Crew is a person who works or is employed on a ship by the owner or operator of the ship to perform tasks on board according to his position listed in the sijil book (Article 1 UU._no.17_tahun_2008 Shipping). All positions on the ship, from captain to messboy, are crew members. The captain is one of the crew members who is the highest leader on the ship and has certain authorities and responsibilities in accordance with the provisions of the laws and regulations (Article 1 UU._no.17_tahun_2008 Shipping).

Framework

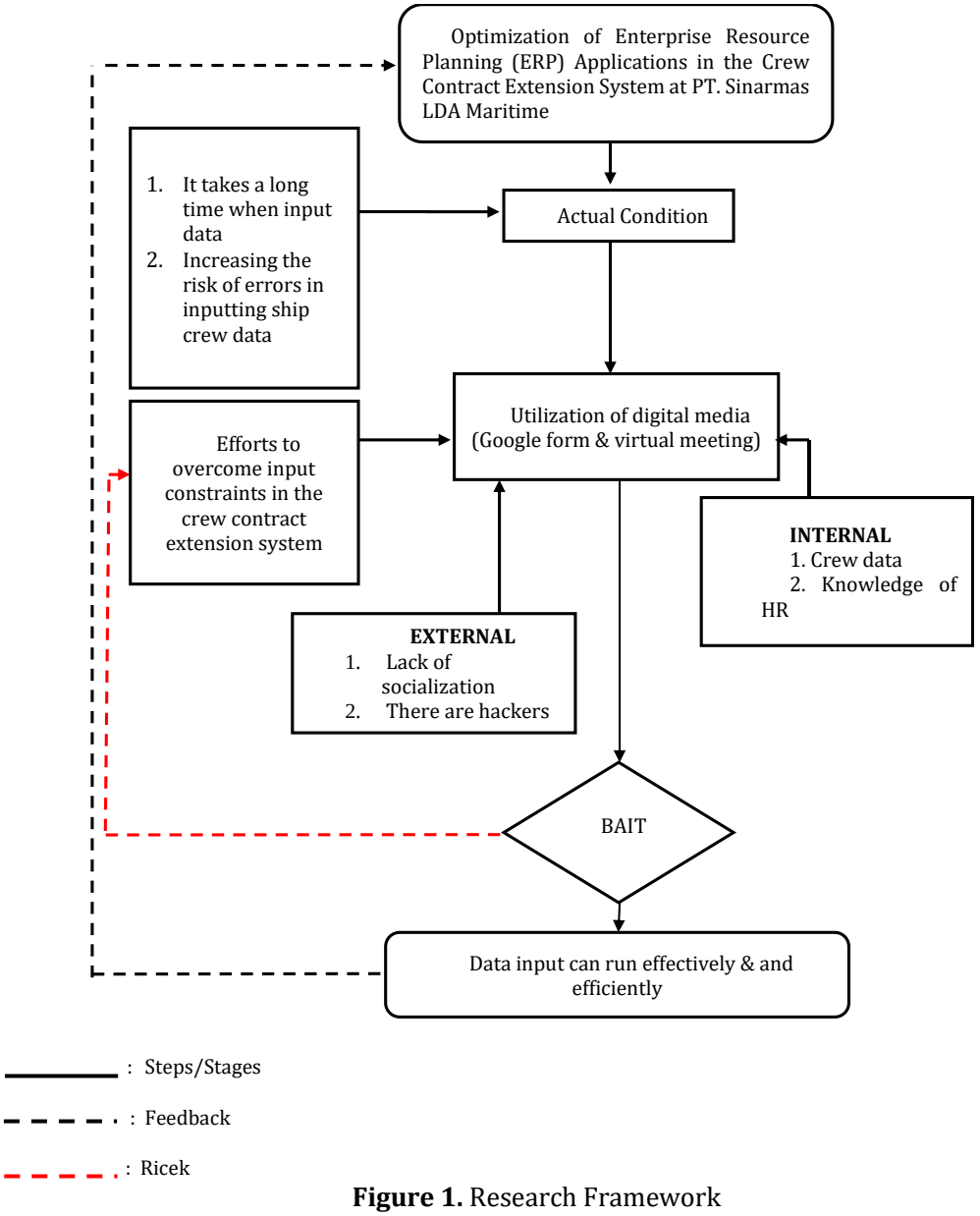

Figure 1. Research Framework

RESEARCH METHOD

The research method used in this study is a qualitative descriptive method.

1. Time and Place of Research

   Research conducted at PT. Sinarmas LDA Maritime and will be carried out from 20 August 2021 to 21 August 2022.

2. Research Data Sources

   Research data sources are informants, primary data, and secondary data. Primary data was obtained through direct experience and interviews with PT. Sinarmas LDA Maritime. While secondary data was obtained through company documentation, government publications, websites, and reference books.

3. Data Collection Techniques

   The methods used to collect data in this study are observation, questionnaires, literature study, and interviews.

4. Research Instruments

   In qualitative research, the instruments are data collectors (researchers), interview guides, and observations.

5. Qualitative Data Analysis Techniques

   Data analysis techniques were obtained with three components, namely the stages of data analysis with SWOT analysis.

6. Data Validity Testing

   This study uses validity standards consisting of credibility, transferability, dependability, and confirmability standards.

FINDINGS AND DISCUSSION

1. Data Description

   Sinarmas LDA Maritime ("SLM") is a Joint Venture between Sinarmas and Louis Dreyfus Armateurs. Previously, the company was named Orchard Maritime Services Pte LTD from Singapore, which was founded in 2014. The company is led by Matthieu Lavione as Chief Executive Officer, SLM is an integrated logistics provider and ship owner offering coal transportation, bulk cargo and port services throughout Indonesia.

   SLM employs 2,000 people in Indonesia and owns and operates 100 Indonesian-flagged vessels of various sizes and capabilities. SLM operates 1,000 trucks, 10,000 m2 of storage, and 50,000 tonnes of storage tanks on land. (https://www.sl-maritime.com/en/about/, n.d.)

2. Findings

   The research data collection was carried out through observation, interviews, and documentation obtained by the researcher during the research. The purpose of this study was to find out the delays in data input in the extension of the ship's crew contract to solve a problem raised by this topic. The researcher made observations while carrying out the land practice which was carried out at the PT. Sinarmas LDA Maritime for 12 Months. Interviews were conducted by researchers using three informants and conducting cellular calls. In this case, delays in inputting data in the extension of the crew contract occur because the input is still using a manual method or a form. SLM provides the use of an ERP system in crewing for data input, but the application method is still lacking. So, delays in inputting data into the ERP system arose, resulting in a buildup of documents and forms from the crew. Even though the crew has been declared to have extended, the crew must be immediately reported to the ASST. Crewing to determine the time and place of sailing immediately.

   Based on the description of the research above, it can be concluded that the researcher made several findings. Here are some of the findings:

a. Obstacles in the implementation of ship crew contract extensions in the ERP application
   1. Data collection still uses manual methods/forms
   2. It takes a long time to input data
   3. Requires adequate internet access
b. Efforts to overcome obstacles encountered in extending crew contact
   1. Make changes to how to fill in crew data from paper forms to Google forms
   2. Conduct outreach to the ship's crew regarding the ERP system and g-form

The findings above are data from research conducted on crew contract extensions using the ERP system at PT. Sinarmas LDA Maritime.

3. Discussion of Research Results

The strategic position of optimizing ERP applications in the contract extension system can be seen based on internal and external factors. Data collection involved seven respondents who were part of the crewing division. Data analysis in this study used SWOT with the results of the assessments given by the respondents to be combined to produce the final value from considering each factor. According to the results of researchers' observations regarding internal and external factors from optimizing the Enterprise Resource Planning (ERP) application on the crew contract extension system at PT. Sinarmas LDA Maritime, namely as follows:

Table 1. Classification of Internal Factors

NO	STRENGTH	WEAKNESS
1.	Save time required in inputting data	There is a risk of data misuse
2.	More flexible data access	Lack of HR for insight and experience in ERP systems
3.	The input data is more accurate	
4.	Easier data analysis and storage	
5.	Crew data security is safer	

Table 2. Classification of External Factors

NO	THREATS	OPPORTUNITIES
1.	Lost data due to human error	The company has reliable human resources in the field of technology
2.	There is a hacker that occurs in the ERP application	Companies have more funding sources for technology pieces

From the classification above, the data is checked through a questionnaire with a maximum weight rating of 1.0 and a maximum rating of 4.0. The following are the results of the questionnaire conducted by the researcher:

Table 3. IFAS Matrix Results

No	Internal Factor	Significance Level	Weight	Rating	Score
		Strength			
1.	Using an ERP application can save the time required for data entry	3,00	0,20	3,00	0,60

2.	Crew data access in ERP applications is more flexible	3,00	0,20	4,00	0,80
3.	The input data is more accurate	3,00	0,20	4,00	0,80
4.	Easier data analysis and storage	3,00	0,20	4,00	0,80
5.	Crew data security is safer	3,00	0,20	4,00	0,80
	Total	15,00	1,00	19,00	
	Sub Total *Strength*				3,80
	Weakness				
1.	There is a risk of data misuse	3,00	0,50	3,00	1,50
2.	Lack of HR for insight and experience in ERP systems	3,00	0,50	2,00	1,00
	Total	6,00	1,00	5,00	
	Sub Total *Weakness*				2,50
	Total IFAS				**1,30**

Table 4. EFAS Matrix Results

No	External Factors	Significance Level	Weight	Rating	Score
	Opportunities				
1.	The company has reliable human resources in the field of technology	3	0,50	3,00	1,50
2.	The company has more funding sources for the technology sector	3	0,50	3,00	1,50
	Total	6,00	1,00	6,00	
	Sub Total *Opportunities*				3,00
	Threats				
1.	Lost data due to human error	3	0,60	3,00	1,80
2.	there are hackers that occur ERP applications	2	0,40	2,00	0,80
	Total	5	1	5	

Sub Total *Threats*	2,60
Total EFAS	**0,40**

Based on the IFAS and EFAS tables from the results of the SWOT analysis that has been carried out, it can be explained as follows:

a. IFAS (Internal Strategic Factors Analysis Summary) table

From the table above it can be seen the level of strength (strength) owned by PT. SInarmas LDA Maritime has a value of 3.80, which means it is greater than the level of weakness at PT. Sinarmas LDA Maritime which has a value of 2.50. So, it can be concluded that the IFAS matrix has a result of 1.30. This figure is obtained from the reduction between strengths and weaknesses.

b. EFAS (External Strategic Factors Analysis Summary) table

The EFAS matrix SWOT analysis results have an opportunity value (Opportunity) in PT. Sinarmas LDA Maritime has a value of 3.00, which means there are more opportunities in the company than threats. The threat value has a lower value, namely 2.60. Then, the result of EFAS is 0.40. The numbers on the EFAS matrix also come from subtraction between opportunities and threats.

From the results of the IFAS and EFAS matrices obtained, a SWOT analysis diagram will be made so that the company's strategic position and final results can be identified, namely:

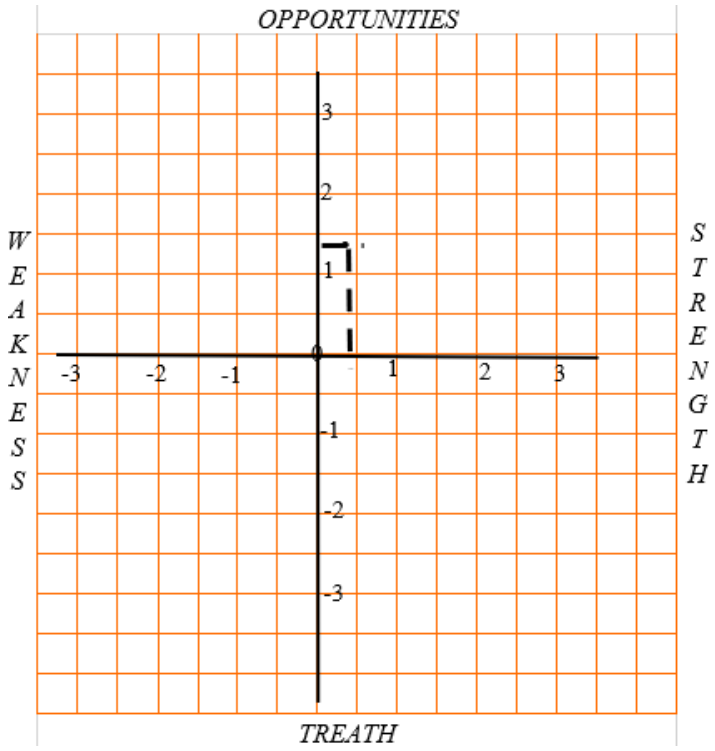

Figure 2. SWOT Analysis Diagram

Through the diagram above, it is concluded that the SWOT matrix scale for the quality of ERP applications in the crew contract extension system has more strengths and opportunities so that they can be developed according to the company's potential. From the location of the quadrant points on the use of ERP applications at PT. Sinarmas LDA Maritime is a progressive strategy, namely a strategy that can be enlarged or developed for growth and outreach by using

its strengths so that it can overcome threats and weaknesses even though there are obstacles in data input. In addition to the results of the SWOT calculations, there are also interview results from informants. These results will be used as supporting data in research.

CONCLUSIONS

Conclusion

Based on the results of research, discussion, explanation, and data processing that has been obtained regarding "Optimization of Enterprise Resource Planning (ERP) Applications in the Crew Contract Extension System at PT. Sinarmas LDA Maritime", then the following conclusions can be drawn:

a. Enterprise Resource Planning (ERP) application helps employees extend crew contracts. However, the ERP application also has obstacles in its use, namely the internet network, which causes employees to have an adequate internet network because the ERP application is heavy in use, so it depends on internet speed performance. In addition, inputting data, including the crew extension system, takes a long time because the crew fills in data still using paper forms, so employees type in one unit into the writing box.
b. The efforts encountered in extending the crew contract are trying to change paper forms by utilizing digital media such as Google Forms and conducting outreach to all crew members about implementing Google forms and the benefits of ERP applications

Suggestion

Optimizing Enterprise Resource Planning (ERP) applications is, of course, inseparable from deficiencies and still requires further development stages, so suggestions are needed that must be considered. Based on the conclusions that have been described, the suggestions are as follows:

a. Companies can use digital technology in data input, such as Google forms.
b. With the Enterprise Resource Planning (ERP) application, companies can evaluate and train crewing staff and crew

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