Design of Information Systems for Administration to Support Business Process in the Shipping Company at PT BSP

Prila Anjani, and Shinta Wahyu Hati

Departement of Business Management, Politeknik Negeri Batam, Batam, Indonesia

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Abstract: This study aims to design an information system for the administration of shipping companies at PT BSP. The administration is an instruction that becomes an important factor in the success of a shipping company to control transportation operations. PT BSP, information systems that can facilitate the management of data related to the marketing administration division, personnel administration, and financial administration. The collection methods used are observation, interview, and documentation. The method used in designing the application system is the waterfall model. This research produces an information system that helps in inputting data of charterers, ship crews, employees, monitoring vessels and printing of quotation letter, SPAL, transportation payment, and petty cash management.

1 INTRODUCTION

1.1 Background

Batam is located in the province of Riau Kepulauan is one of the cities strategically and is in the path of a cruise that has a great opportunity to run a company in the field of shipping. Based on Statistics of the Ministry of Transportation (2018), the number of sea transportation companies in Riau Islands Province has increased from 2014 to 2018.

This increase makes competitiveness quite high in maritime activities. Maritime activities are included in operational activities, which include activities of goods which are loaded in terminals and unloaded within a certain period and loading and unloading costs of goods. In this case, a systematic pattern of activity sequence is needed or designed to run smoothly.

Administrative records in the information system to make it easier to integrate data. Information systems have a considerable influence on business activities such as marketing, operational management and finance. The information system is a system within the organization that meets the needs of daily transaction management, supports managerial operations and strategic activities of an organization, and provides the required reports (Hutahaean, 2014).

Table 1: Sea Transport Companies by Province 2014-2018.

Source: Transportation Statistics Book I (2018)

PT BSP is a shipping company that has a fleet of tugboats and barges. Operational activities carried out are transporting goods. However, over time, irregularities in marketing management, personnel, and financial administration of employees are difficult to identify in the business processes that are run and are only based on ineffective work processes because the recording still uses manual methods. Therefore, the right solution can be by implementing information systems.

Administrative management arrangements in the flow of division marketing administration

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procedures in the cooperation relationship between companies and recording data on charterers, then personnel administration in the fulfillment of HR/crew and the process of monitoring operational activities of transportation to the financial administration division in the financial management of transportation payments and petty cash management is difficult to be identified and recapitulated in the work system at PT BSP. The term administrative word that is often understood comes from the Dutch language " Administratie" is administrative techniques, which are mild bookkeeping activities, taking notes, writing, typing agendas by carrying out administrative processes and procedures that are clear and orderly which help to run business processes properly supported by an information system (Priansa & Damayanti, 2015).

The importance of information systems for shipping companies where information processing requires accurate data and results. However, in this shipping company, it can be said that it has not yet developed and experienced problems in the administration of information systems because recording is not integrated so it cannot process data properly.

One of the things that can be done is to use the Microsoft Access program. Information systems using Microsoft Access can produce a computerized administrative transaction recording system (Ummasyroh, Herawati, & Furqon, 2014). Microsoft Access can be designed and developed into an information system so that it can help in managing administrative activities. The design of information systems for administration can facilitate the processing of data, storage, and produce data that will become information for business processes that are run.

Based on the results of the situation analysis described, in this case, the author can conduct research under the title "Design of Information Systems for Administration in shipping Companies at PT BSP".

1.2 Problem Formulation

The formulation of the problem that can be found in the background above is as follows:
1) How to evaluate before and after administration in PT BSP?
2) How to design an information system for Microsoft Access-based administration at PT BSP?

1.3 Research Purpose

The research purpose to be achieved are as follows:
1) To evaluate the administration in PT BSP.
2) To find out information systems for administration at PT BSP.

2 LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Information Systems

An organized combination of hardware, software, people, network-communication and data resources that can change, collect data and disseminate information within an organization (Anggraeni & Irviani, 2017).

2.1.2 Microsoft Access

Special software to store and manage data in a database (Talib, 2014). A database is a collection of information or data that includes one or more tables that are interconnected with one another which can access data, add data, replace data, delete data, and edit data in these tables (Madcoms, 2007).

2.1.3 Administration

A relationship building that is systematically arranged in support of the realization of work mechanisms that are arranged to achieve the desired goals in forming a network that collaborates (Fahmi, 2015).

2.1.4 Shipping Companies

According to RI Law Number 17 of 2008, Shipping is a unified system consisting of transportation in the port, waters, safety, and security as well as protection in the maritime environment.

2.2 Research Accomplished

1. Research from Arif & Purwoko (2018) under the title *Perancangan Sistem Informasi Gudang Obat pada Rumah Sakit Umum Islam Madinah Kasembon Malang* and the result in research is Application designed using MS Access that speeds up staff work in making reports and a recap of stocks and see prices without the need to have to look at the stock card listed on the storage rack.

2. Research from Fauziah Larif (2015) under the title *Perancangan Sistem Informasi Manajemen Arsip Elektronik (E-Arsip) Berbasis Microsoft. Access pada PT Hi-Test* and the result in research is the design of an information-database management system.
3. Research from Wahyuni & Ardoni (2014) under the title *Perancangan Database Peminjaman dan Pengembalian Buku di Perpustakaan SMKN 1 Padang Panjang Berbasis Microsoft Access* and the result in is Database Design of Loans and Returns Books at the 1-Padang Padang Panjang SMKN Library.
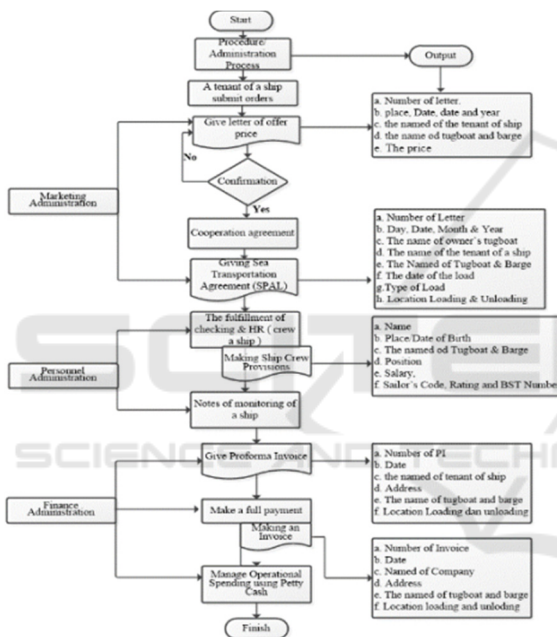
2.3 Conceptual Framework

Figure 1: Administrative Framework

3 RESEARCH METHOD

3.1 Research Design

The research design carried out in this study is a descriptive qualitative approach. A descriptive qualitative approach is a method of data processing by investigating the conditions that have been mentioned related to the object of research (Arikunto, 2013). This research to design information systems that can be make the administration system run well. The preparation of the procedure can be started by making a flowchart. The following is a flowchart of design information system:
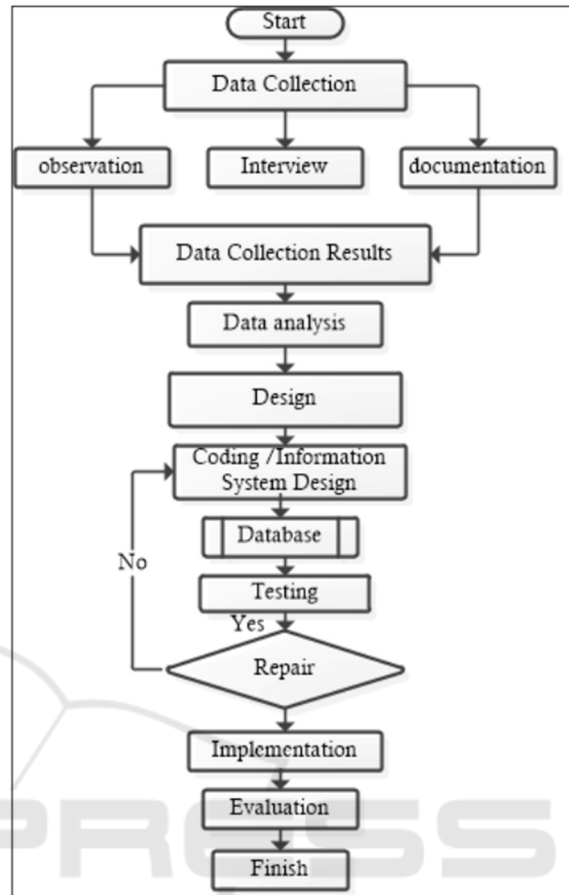
Figure 2: Flowchart of the Information System

3.2 Research Focus and Subjects

The focus contained in the research conducted is Designing an information system for administration based on Microsoft Access. The subject that will be used in this study is the staff of PT BSP.

3.3 Data Collection Techniques

a) Observation
   The authors conducted a survey directly on PT BSP.
b) Interview
The authors conducted an interview with the staff of PT BSP.
c) Documentation
Data collection techniques by obtaining data or documents related to research in the form of data on the list of ship charterers, data on ship crews, employee monitoring, payment records, and petty cash management.

4 RESULTS AND DISCUSSION

4.1 Results

In the research of information systems design for administration of shipping companies in PT BSP, the author will describe and identify the problems that have been formulated. The results of this study were obtained from interview techniques.

Table 2: Research Informant

No	Name	Education	Posision	Long of Working
1.	Eliana Aprianti Nainggolan, SE	Bachelor of Accounting	Marketing Adminsitration	2 Years
2.	Firmanita, SH	Bachelor of Law	Personnel Administration	10 Years
3.	Eliana Aprianti Nainggolan, SE	Bachelor of Accounting	Finance Adminsitration	5 Years

4.1.1 Identification Administrative before Implementation at PT BSP

1) Marketing Administration

In marketing administration marketing plays an important role in becoming a milestone in the development of a business. But this company does not have a good strategy to market it only provides a letter of offer that includes prices to attract the attention of the charterers of the ship.

   a. The identification of the problems above shows that:

      1. Lack of marketing administration staff owned by PT BSP.
      2. The absence of a good marketing strategy
      3. The absence of recording of data on ship charterers becomes less efficient for making sea transportation agreement letters.
      4. Evaluation

   b. From the above identification it is recommended to:

      1. Add additional staff to handle the responsibilities.
      2. Make a mature strategy in marketing so that ship charterers will find it easier to coordinate if they want to work together.
      3. Make improvements in the recording of the charterer's data.

2) Personnel Administration

In personnel administration, it was identified that there was a lack of recording of office staff data and no preparations for management, especially the crew where the crew carried out operational activities to record shipping monitoring.

Evaluation of the identification above is recommended for:

   a. Record employee data in the office in information system.
   b. Make systematic record monitoring of shiploads in the information system.

3) Financial Administration

   a. Payment of Transportation

   In financial administration, transportation payments do not have recapitulation of payments in the information system based solely on the records in the file.

   b. Petty Cash Management

   Petty cash management in the financial administration of PT BSP is used to disburse funds in operational financing and management still uses manuals

Evaluation of the identification of transportation payments and petty cash management above is as follows:

1. Record transportation payments and manage petty cash for requests for operational expenditure funds automatically in the information system.
2. Any operational expenditure accompanied by evidence every payment transactions and the transfer accompanied by evidence.

4.1.2 Design of Administrative Information Systems at PT BSP

A. Planning of Administrative Information System Design at PT BSP

The following is the planning of information system design, namely:

1) It starts by analyzing the needs of the user.
2) Do a database design to determine and describe the data or database components that are needed.
3) Start building database or coding.
4) Perform testing of database applications that have been completed.
5) Evaluate the results of testing given by the user
6) Results of evaluations that have been improved according to user requests will be implemented at PT BSP.

B. Analysis Phase

The authors analyse the requirements needed by the user in the use of the information management system of shipping company administration

C. Database Design Stage

Design can be interpreted as the process of making or creating a new object. After conducting

the needs analysis process, this process will describe the database components needed to meet user needs.

1) Table structure
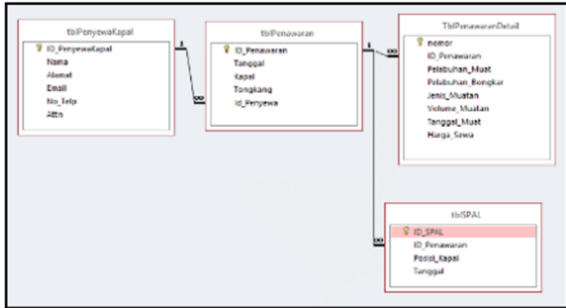2) Design of relation between tables
   a) Marketing administration

Figure 3: Relationship Table of Marketing Administration Process

   b) Personnel administration
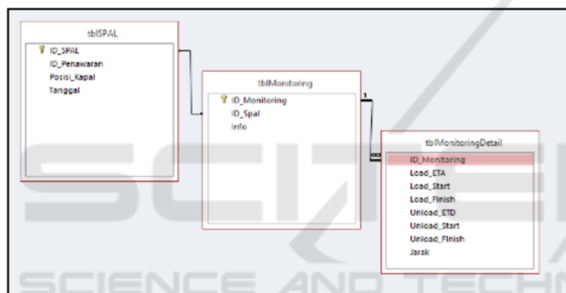
Figure 4: Relationship Table of Personnel Administration Process

   c) Financial administration

Figure 5: Relationship Table of Financial Administration Process

3) Designing information system interfaces for administration
4) Database testing process
   a) Login form display

Figure 6: Login Form Display

   b) Home form display
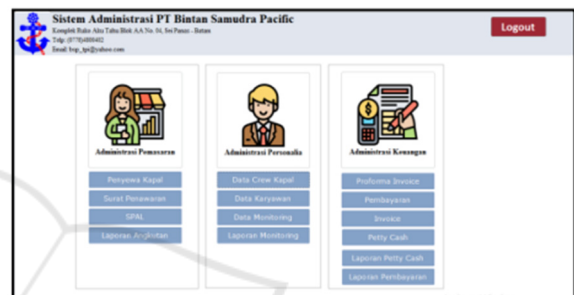
Figure 7: Home Form Display

   c) Ship charter form display

Figure 8: Ship Charter Form Display

   d) Quotation letter form display

Figure 9: Quotation Letter Form Display

e) SPAL form display

Figure 10: SPAL Form Display

f) Shipment report display

Figure 11: Shipment Report Display

g) Ship crew form display

Figure 12: Ship Crew data Form Display

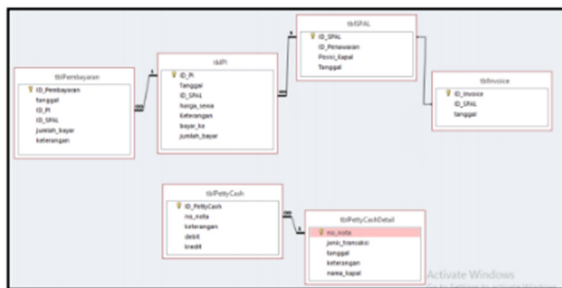h) Employee data form display

Figure 13: Employee Data Form Display

i) Data monitoring form display

j) Monitoring report display

Figure 14: Data Monitoring Form Display

Figure 15: Monitoring Report Display

k) Proforma invoice form display

Figure 16: Proforma Invoice Form Display

l) Payment form display

Figure 17: Payment Form Display

m) Invoice form display

Figure 18: Invoice Form Display

n) Petty cash form display

Figure 19: Petty Cash Form Display

o) Petty cash management report display

Figure 20: Petty Cash Management Report Display
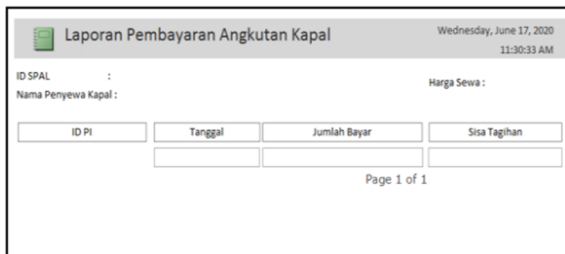
p) Shipment payment report

Figure 21: Shipment Payment Report Display

q) Features contained in the shipping company administration information system

Table 3: Features on Shipping Company Administration Information System

Picture	function
x`	**First Record** is a facility to see the very first/initial data
	Last record is a facility to **view** the most recent data
	Previous record is a facility to **view** previous data
	Next record is a facility to view further data
	Add is a facility to add new data
	Save is a facility to save data
	Delete is a facility to delete data
	Print is a facility to print data documents.
Cari	**Find** is a facility to find the required data
	Close is a facility to Close form.

4.1.3 Evaluation & Implementation of Information System after Doing Administration in Shipping Companies at PT BSP

Evaluation and Implementation of Information Systems After doing Administration in PT BSP. After the database testing was carried out starting from 29 May 2020 until 27 June 2020 and an evaluation of the results of the testing was held, then the authors get the results of the implementation of the data collection per division in each table in MS access. After doing the database testing process, the authors get the following results:

Table 4: Information System Evaluation Results

Factor	Indicator	Result	
		Yes	No
Ease	Presentation is appropriate	✓	-
	Access information systems	✓	-
	Searching of data or information	✓	-
	Understand the use of features	✓	-
Content	The application features are running well	✓	-

Factor	Indicator	Result	
		Yes	No
	Meet the needs of users according to the division		
	Assist in managing company administration		
Excellence	Make it easy for users to manage shipping company administration	✓	-

4.2 Discussion

4.2.1 Identification before and after Doing the Administration of PT BSP

This study began by identifying the administrative implementation that occurred at PT BSP to determine the problems experienced. This is experienced by Hamidi & Raflah (2018), in identifying the administration of the admission at checkpoint guards that the identification is to make a sequence of activities organized so that each individual involved has standard rules and restrictions. The identification of administrative activities is useful to assist employees in recording business transactions, carry out procedures and provide data and supervision aimed at identifying administrative errors to be corrected.

4.2.2 Design of Administrative Information Systems at PT BSP

The design of information systems for administration in shipping companies is also the result of the identification of administrative management that has happened before.

Then the researchers get results to meet the need for an information system to support the management of a well-ordered administration.

This information system design method starts from planning, needs analysis, system design, implementation, to evaluation. But the difference is that research uses Microsoft Access while the research uses the Visual Basic programming language (Arif & Purwoko, 2018).

In line with research on, administration information system was designed in accordance with the needs of users in PT BSP. This information system is useful in integrating data on business processes that run on PT BSP. As in the marketing administration division, the process of making bid letters and sea transportation agreement letters with ship charter data must be well integrated and accurate, which can produce a transportation data report that helps the marketing administration division in forecasting future transportation.

Likewise, with the personnel administration division, recording the data of the incoming crew as employees of PT BSP makes it easy to estimate transportation monitoring in the field.

From the business and operational process data above, the results will be obtained in the form of cost data, which is the material needed from the financial planning flow in the payment of transportation and petty cash management at PT BSP.

Therefore, the design of the information system for administration is done so that the administrative business processes generated at PT BSP can be well integrated. This is where producing an information system with the aim of being able to optimize work by implementing a computerized system so that it is easy to perform data integration.

Therefore, the design of the information system for administration is done so that the administrative business processes generated at PT BSP can be well integrated. This results in an information system with the aim of optimizing work by implementing a

computerized system so that it is easy to perform data integration (Wahyuni & Ardoni, 2014).

4.2.3 Evaluation & Implementation of Information Systems after Doing Administration in Shipping Companies at PT BSP

The results of the implementation are in the form of a database of all data implemented in the information system. From the results of the implementation, the researchers also conducted an evaluation of the impact that occurred after implementing the information system at PT BSP. Based on the research on, those suggested factors have already been fulfilled. Based on the elements these are good effects that the authors can see after the implementation of this information system at PT BSP.

From the convenience factor, the authors get the results that the user states the use of information systems is appropriate, easy to access, easy to do data searches, and easy to understand the use of features.

From the content factor/content, the authors get the results that the user states that the information system features are running well, meeting user need.

From the factor of excellence, the authors get the results that this information system helps the user in carrying out administration compared to the manual system that has been done before.

5 CONCLUSIONS

Based on the results of research on the design of information systems for administration in shipping companies at PT BSP, the following conclusions are drawn:

1) Evaluation before the implementation of administration on the shipping company PT BSP has been done and found the results of the identification division marketing administration identified that a few employee the administration of marketing makes it difficult to concurrently work carried out by the administration end of Financial process in the beginning and there was no significant recap of charter data, making it difficult to make price quotes and sea transportation agreements. In the personnel administration section, it was identified that the maximum recruitment under company needs, in this case, was useful for facilitating the recording of operational monitoring on ships. In the financial administration section, in the case of the payment process for transportation and petty cash

management, there is a lack of procedures and irregularities in filing transaction evidence and petty cash request forms, relying only on manual notes that are not perfectly recapitalized.

Evaluation after the administration of the shipping company that has been completed is designed by implementing Information Systems at PT BSP for 1 working month, from 29 May 2020 to 27 June 2020 and then the results are implemented and evaluated to determine the suitability and needs in planning and design with the results of the application that has been done. The administration application can be carried out properly following each administrative division in the three divisions.

2) This research has succeeded in designing an information system for administration based on Microsoft Access. With this information system, the recording of the relevant data within each division's scope can be integrated, accurate and more automated data searching. Data security in this information system uses a login form so that only each of these divisions has a name and password that can access this information system so that data security is more secure between divisions.

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REFERENCES

Anggraeni, E. Y., & Irviani, R. (2017). *Pengantar Sistem Informasi.* (E. Risanto, Ed.) Yogyakarta: Andi.

Arif, S. M., & Purwoko, H. (2018). *Perancangan Sistem Informasi Gudang Obat Pada Rumah Sakit Umum Islam Madinah Kasembon Malang.* Journal of Computer Engineering System and Science, *3.*

Arikunto. (2013). *Prosedur Penelitian Suatu Pendekatan Praktik* (Vol. 2). Jakarta: Rineka Cipta.

Fahmi, I. (2015). *Pengantar Ilmu Administrasi Bisnis* (1 ed.). (S. Idris, SE., M.BA, Ed.) Bandung: CV. Alfabeta.

Hamidi, & Raflah. (2018). Standard Operating Procedure (SOP) Penerimaan Tamu (Studi Kasus Politeknik Negeri Bengkalis. *Jurnal Inovasi dan Bisnis, 6.*

Hutahaean, J. (2014). *Konsep Sistem Informasi.* Yogyakarta: Deepublish Publisher. Madcoms. (2007). *Panduan Lengkap Microsoft Access 2007.* Yogyakarta: Andi.

Priansa, D. J., & Damayanti, F. (2015). *Administrasi & Perkantoran Operasional Perkantoran.* Bandung: CV. ALFABETA.

Talib, H. (2014). *Panduan Lengkap Ms Access 2013.* Jakarrta: PT Elex Media Komputindo. Ummasyroh,

Herawati, Y., & Furqon, A. (2014). *Perancangan Aplikasi Sistem Informasi Penjualan Berbasis Microsoft Access 2007 pada Toko Syafa Collection Palembang.* Jurnal Informatika dan Komputer*, 13*, 79-97.

Wahyuni, P., & Ardoni. (2014). *Perancangan Database Peminjaman dan Pengembalian Buku di Perpustakaan SMKN 1 Padang Panjang Berbasis Microsoft Access.* Jurnal Ilmu Informasi Perpustakaan dan Kearsipan*, 3*.