Analysis of Information System Conversion Using SAP

Firsty Anastasia, S.E.,* Dr. Izzati Amperaningrum, SE., MM**

* Magister Management of Accounting Information System,
Faculty of Management Information System, Gunadarma University

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Abstract- This research was conducted at PT. Duraquipt Cemerlang which engaged in the trading of pumps for petroleum companies. The purpose of this research is to analyze the application of information system before conversion, knowing the process and stages of system conversion and describes the benefits after the system conversion using SAP at PT. Duraquipt Cemerlang.
There are several issues that cause the company to convert its system, such as the lack of integration of the system between the related parties that causes the business process interrupted. The method used is a phase-in conversion. From the conversion process there are several advantages, such as the integration of system between related sections and improve the productivity of employees who use the SAP system. Based on the results of the research, the authors conclude that the implementation of information systems before using SAP is running well but no integration between parties and the decision made to convert the system using SAP is for effective and efficient business process.

Index Terms- Analysis; Conversion; Accounting Information System; SAP

I. Introduction

The development of technology has brought a major change, especially for the management of a company. All information systems continue to be developed to achieve the goals of the company. Changes in the use of types of information systems used are also of particular concern to companies. Information systems that can support each type of work and facilitate implementation, monitoring and evaluation for company leaders are strong reasons why information systems are needed.

The application of information systems in a company is carried out to support the company's business strategy, business processes, structure and corporate culture in order to increase the business value of the company. Strategic support from the application of information systems in the company in the form of increasing efficiency and effectiveness in the implementation of various tasks or daily activities of the company.

Identification of Problem

PT. Duraquipt Cemerlang is a company engaged in the supply of pumps for oil and gas companies as well as maintenance and assembly of pumps themselves. PT. Duraquipt Cemerlang has experienced rapid development since it was founded in 2000. Because of its development, the system used can no longer be done manually. All business activities begin to be developed using information systems built by the company. But in the era of information technology that is now increasingly rapid, PT. Duraquipt Cemerlang decided to convert the old system that they had built using an ERP system, namely SAP (System Application and Product).

One of the factors that makes this company convert the system by switching to SAP is the company's needs in terms of business activities that increase in volume. The optimal contribution of an information system will be achieved by a company by implementing a computerized information system (automated). Changes in the use of conventional information systems that are more manual to information systems that automatically have a tendency in many companies to encounter obstacles.

One obstacle is that employees as users (end users) are less able to adapt in carrying out the information system functions because they have been using the system for a long time. To overcome this problem, usually the way that is done by the company is to conduct training (training) to its employees by using the services of other parties or information technology vendors (IT), such as SAP who has experience in their fields.

There are several other ways, such as adapting one of the four operating system conversion strategies or models, both direct, parallel, pilot, and stepwise conversion strategies. System conversion is one of the aspects that determine success in implementing a new information system. In this conversion phase, non-technical aspects including approaches, methods, managerial strategies related to work systems and user organizations are the attention of developers in addition to the technical aspects of information system development because users are involved in all lines directly. The choice of each company depends on the needs and conditions in the field. It could also be for reasons of minimizing risk but requires a lot of costs or vice versa.

Research Questions

Based on the description of the background and the formulation of the problems to be solved are as follows:

1. What is the accounting information system at PT Duraquipt Cemerlang currently?
2. What is the process or stages of system conversion at PT Duraquipt Cemerlang?

Research Purpose

The purpose of this research are:

1. Knowing the accounting information system at PT. Duraquipt Cemerlang currently.
2. Knowing the process or stages of system conversion at PT.Duraquipt Cemerlang.

II. THEORITICAL FRAMEWORK

Definition of System

According to Mulyadi (2001:2), the system is basically a group of elements that are closely related to one another, which function together to achieve certain goals.

Definition of Information

According to Chusing dan Romney (2001), information can be interpreted as processing results that are organized, meaningful and useful for those who receive it. While according to Krismiaji (2005), information is data that has been organized and has uses and benefits.

Definition of System Conversion

System conversion is the stage used to operate a new system in order to replace the old system or the conversion process from the old system to the new system. The degree of difficulty and complexity in converting from the old system to the new system depends on a number of factors.

If the new system is a canned software package that will run on a new computer, the conversion will be relatively easier. If the conversion utilizes new customized software, new databases, new computer devices and control software, new networks and drastic changes in procedures, then the conversion becomes rather difficult and challenging.

The Process of Information System Conversion

There are 4 (four) methods that can be used by companies in converting old information systems to new information systems. The four methods are:

a.Direct Conversion;
b.Parallel Conversion;
c.Phase-In Conversion;
d.Pilot Conversion

Conversion Plan

System conversion as one of the factors that is very influential in the success of the implementation of a new system, then the process should have been carefully planned. Success in the conversion process can be said to be the beginning of the success of the implementation of the new system for the company.

Failure in the conversion process will result in no useful development of new information systems for the company, and will cause significant losses for the company.

One of the system conversion planning models is a template made by the Department of Information Technology-Government of Maryland. The template that explains the phase of system conversion is as follows:

a.Introduction
b.Conversion Overview
c.Conversion Support

Enterprise Resource Planning (ERP)

ERP is a reliable Communication Information Technology device, consisting of a collection of modules, such as manufacturing, finance, HRD, material management, sales, and distribution connected to a shared database. Through cross function integration, companies can increase productivity and service to customers (Yajiong Xue et al. 2005).

ERP is a company information system designed to coordinate all resources, information and activities needed for a complete business process. ERP is software that integrates all departments and functions of a company into a computer system that can serve all of the company's needs, both from the sales department, HRD, production or finance. ERP combines various needs in one software in a logical database, making it easier for all departments to share information and communicate (Haryo, 2006).

O'Brien (2002) wrote, ERP is a corporate cross-functional system driven by an integrated software suite module that supports the company's basic internal business processes. ERP provides a real-time view of integrated business processes such as production, order processing, and inventory management that are integrated by ERP application software and general databases. Explicitly, O'Brien (2002) said that ERP provide significant business benefits for the company, such as:

a. Quality and Efficiency

ERP creates a framework for integrating and enhancing the company's internal business processes which results in significant improvements in quality and efficiency in customer service, production and distribution.

b. Decrease in Costs

Reducing the costs of transaction processing and hardware, software and IT support employees.

c. Decision Support

ERP provides information about cross-functional business performance that is very important quickly for managers to be able to increase their ability to make decisions in a timely manner across the company's overall business

d. Company Agility

ERP systems break down the walls of departments and functions of various business processes, information systems and information resources. (produce organizational structures, managerial responsibilities, and more flexible work roles).

Figures 2.1 Main Component of ERP

System Application and Product (SAP)

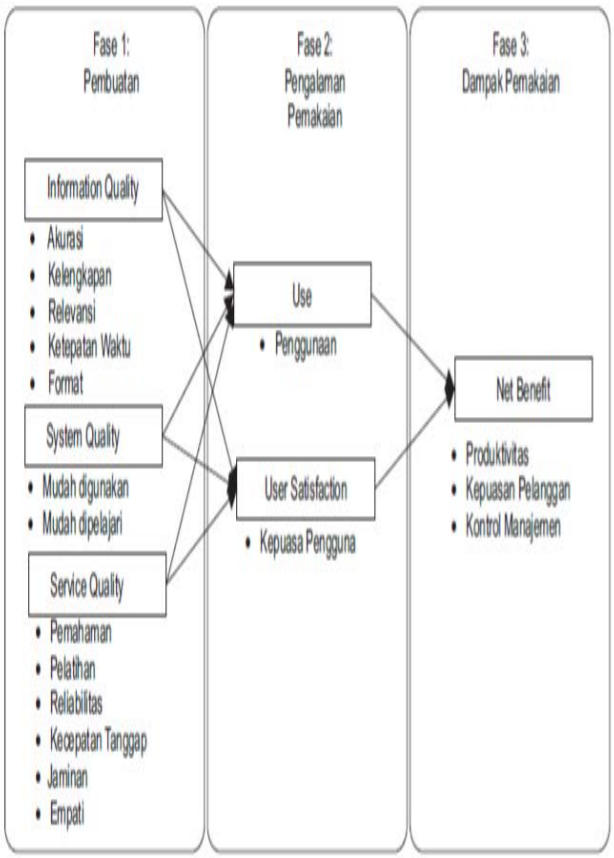
SAP (System Application and Product) is a software developed to support an organization in carrying out its operational activities more efficiently and effectively. SAP is also an Enterprise Resources Planning (ERP) software, which is an IT and management tool to help companies plan and carry out various daily activities. SAP consists of a number of modules or applications that have the ability to support all transactions that need to be done by a company and each application works in conjunction with one another (Seto, 2013).

SAP has several advantages including:

a. SAP consists of a number of modules or applications that have the ability to support all transactions that need to be done by a company and each application works in conjunction with one another.
b. SAP has a netweaver platform, which supports development and logistics software
c. SAP have ABAP or programmer, which facilitates developers to implement business logic
d. Supports the integration of business processes of large companies
e. All information stored in SAP can be accessed by parts of the organization when needed (Seto, 2013).

The DeLone and McLean Information System Success Model

This model is built from three components, namely the making of the system, the use of the system, and the impact of system usage (Delone and McLean, 2003). The components are arranged in a measurement sequence as follows. First, information systems are made and their quality is measured by three dimensions of quality, namely information quality, system quality, and service quality. Second, information systems are used and their usage experience is measured in two dimensions, namely, dimensions of use and dimensions of user satisfaction. Third, the impact of usage as measured by two dimensions, such as individual impact and organizational impact (net benefit). The DeLone and McLean Information System Success Model can not only be used for research with a variable measurement approach, but also can be used for qualitative study-oriented research, with a sequence of studies in the manufacturing phase, usage experience phase, and phase of the impact of the use of information systems.



Figures 2.2 The DeLone and McLean Information System Success Model (Qualitative Study)

III. RESEARCH METHODLOGY

A. Data Collection Methods

Library Research

The methods of data collection is done by studying and reviewing the literature related to the issues, to be discussed as well as to understand the material and theories related to the Enterprise Resource Planning system (ERP) and System Application and Products (SAP) to be used by PT. Duraquipt Cemerlang.

Field Research

The data used by author is primary data. The author used Field Research methods by visiting company to gather information that needed, such as giving questionnaires, known as data collection by giving a set of questions or written statements to respondents in this case the employees of the relevant part of PT. Duraquipt Cemerlang so that respondents answered about the factors that caused the company to convert the system.

B. Data Used

The data used in this study are:

a. Primary data

Data obtained directly from the company that will be further processed by the author, such as interviewing the relevant parts of PT. Duraquipt Cemerlang.

b. Secondary data

Data obtained from the company in the form of documentation such as the history of the company's establishment, organizational structure, company activities, and other completeness data. As well as written sources or literature studies or from electronic media.

C. Analysis Tools

The analytical tool used by author is a qualitative descriptive analysis, is the analysis that uses data obtained by author, then compared with theories. Descriptive is the presentation of data generated from research by giving an idea of what it is or in accordance with reality. In the process of collecting data, it is done by using a set of instruments that have been prepared by the author to obtain information through interviews, observation, and documentation.

IV. RESULT AND DISCUSSION

Case Analysis

PT. Duraquipt Cemerlang is a developing pump repair and maintenance company in the oil and gas industry. In its development, PT. Duraquipt Cemerlang is increasingly known especially in oil and gas companies. Because of this, the demand or order of goods increases significantly. The more orders, the more complex the use of application systems to improve the efficiency and effectiveness of the company.

Before deciding to use SAP, PT. Duraquipt Cemerlang uses its own system built by the company's IT department. The system that has been built has disadvantages in terms of integration between related parts. For example, purchase orders that have been made by the purchasing department cannot be directly accessed by the receipt of goods. Where should the PO database number (Purchase Order) be a key that can be accessed by the receipt of goods. Of course that becomes ineffective when another part asks for progress from the PO. Because the receipt of goods must ask for data first to the purchasing department for the next process.

Another example is in the finance department where the process of payment to vendors is often not timely because in the old system there is no automatic "due date" feature. This makes the employee have to manually record when the payment is due. Of course this wastes time and results in bad relationships with vendors because often the payment process is not on time.

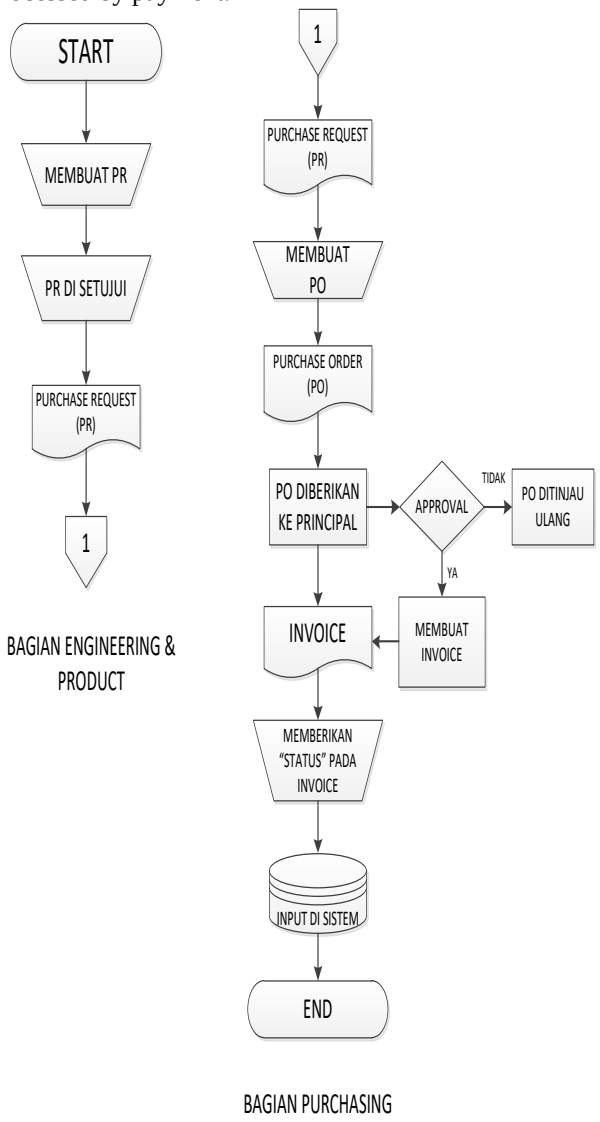
In addition, in terms of collection of receivables, there is also no sales term that automatically provides information about when the receivables are due. This has caused the receipt of receivables to be choked up because often there are many receivables that are "overdue". Thus, this greatly affects the profits and assets turnover obtained by the company.

From the things mentioned above, PT. Duraquipt Cemerlang decided to convert the old system using SAP. The method used is the Gradual Conversion method. This stepwise conversion method is done by replacing a part of the old system with a new system. If something happens, the new part will be replaced with the old one. If there is no problem, then the new modules will be paired again to replace the other old modules. With this approach, eventually all old systems will be replaced by a new system.

a. Purchasing Information System

The process of purchasing goods is done first in the Engineering and Product Department. They make a Purchase Request (PR) that will be approved by the Head of the Engineering and Product Department. After approval, the PR is given to the Purchasing section to make a Purchase Order (PO).

After that the Purchasing section sends the PO to the Principal for approval. If the Principal agrees, an invoice or bill is given to process the payment. Before the payment process, the Purchasing section will give "Status" to the invoice, whether the item has been received or according to the PO value. Then the invoce is entered into the system. After inputting into the system, the Accounting section will withdraw data from the system so that it can be processed by payment.

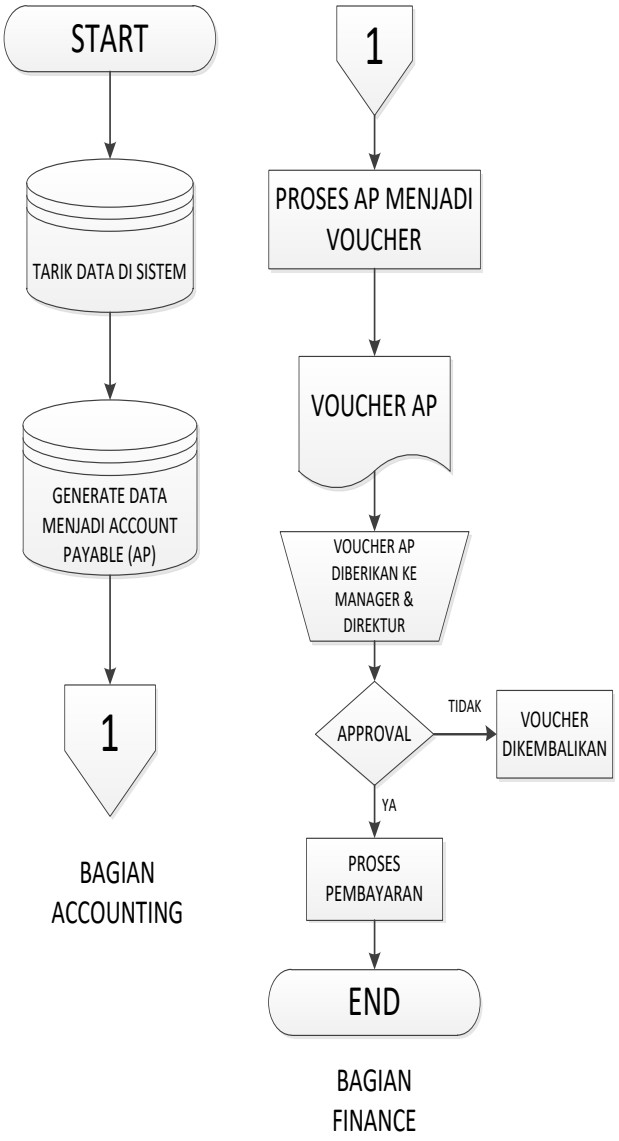


Figures 4.1 Flowchart Purchasing Information System PT. Duraquipt Cemerlang

b. Payment Information System

Payment systems occur in the Finance and Accounting Department. The first step is the Accounting section will pull data from the system that was previously inputted by the Purchasing section. After that, the data is generated to be processed into Accounts Payable (AP). After the data has become an AP, the Finance section will make a voucher to be paid.

The next step is AP vouchers must be approved by the Finance Manager and Director. Then after gets approval, the payment will be executed.



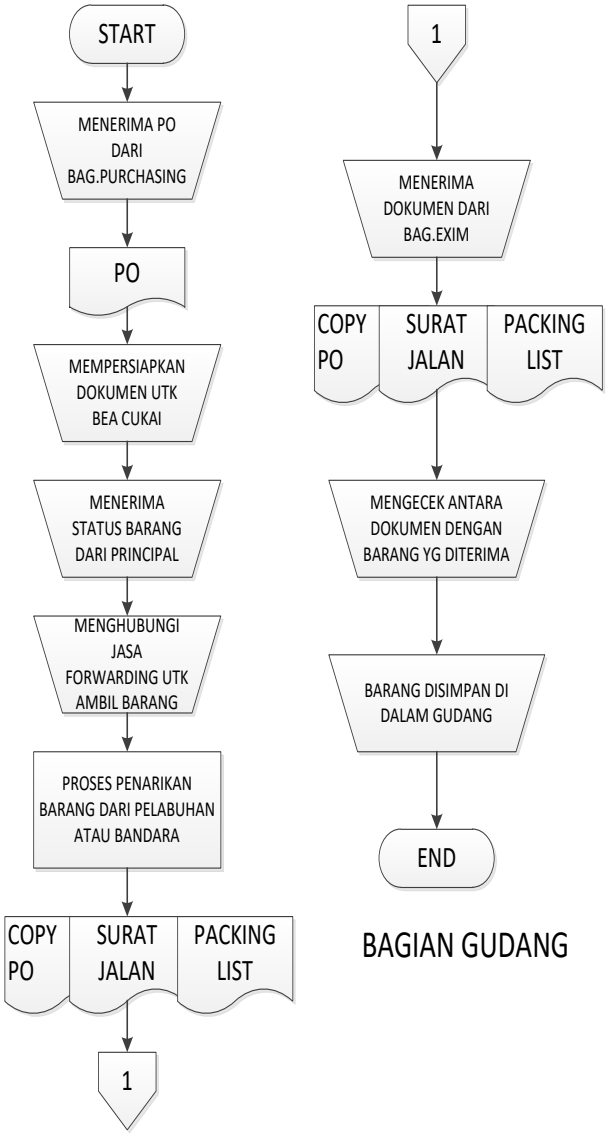
Figures 4.2 Flowchart Payment Information System PT. Duraquipt Cemerlang

c. Goods Receipt Information System

Goods receipt occurs in the Warehouse section. However, before the warehouse received the goods, the process of receiving goods occurs in the Export and Import section. If the purchase of goods occurs domestically or locally, there is no need to process in the export and import section and the goods are immediately received by the warehouse section. If the item is from abroad, it will be processed first in the Export and Import (Exim) section.

The Exim section accepts the PO from the Purchasing section to check when the item will be ready to be received and what terms apply. Then the Exim section prepares what documents are needed for the process at customs. After that, the Exim section will receive the status of goods from the Principal to then be withdrawn from the port or airport. Then the Exim section will arrange for the process of withdrawing goods by using forwarding services.

When the item has been withdrawn by forwarding services, the item will be received by the warehouse. Then the warehouse will check between documents and items received. Then the items will be stored in the warehouse.



Figures 4.3 Flowchart Goods Receipt Information System PT. Duraquipt Cemerlang

System Conversion Planning

a. Introduction

PT. Duraquipt Cemerlang decided to convert the system using SAP. SAP is an ERP application to support the growing needs of the company. The main purpose of choosing SAP as an application or replacement system that is running in the company, namely

SAP provides a lot of convenience in terms of data integration between departments.
The SAP product used is SAP Be One. SAP Be One was chosen because it fits the type of small to medium-sized companies, where PT. Duraquipt Cemerlang is a growing middle-sized company.
The advantages of SAP Be One are among them can be integrated with external systems where companies can combine and develop all applications that exist and are needed by the company. Another advantage is that SAP Be One connects all production lines and all departments in the company, and modules that are in SAP Be One are integrated but can be broken down according to the needs of the company.
During the conversion process, SAP Be One provides a team for in-company training regarding SAP products and modules that the company will use.

b. Conversion Overview

In the process of conversion at PT. Duraquipt is brilliant, not necessarily the old or running system is stopped and replaced with SAP. The company decided to convert in stages by running two systems at once.
Some employees are given SAP applications and some still use the old system that is running. The goal is that when the SAP system is run and an error occurs, it can re-use the old system. This is done so that business processes in the company are not disrupted.

c. Conversion Support

Conversion support in question is the hardware used, software that needs to be upgraded, what facilities are used during the conversion process and the personnel or support staff from SAP. In this case, the hardware has no changes, meaning that it still uses existing devices. Then the software to support this SAP system also needs to be improved in terms of internet connection. Because in the SAP module high internet connectivity is required for realtime processes.
During the conversion process, there will be several SAP expert personnel who will provide training on SAP. Training will be conducted for one month and if there is an error in the future, the SAP expert personnel will be ready to improve.

System Conversion Method

a. Making Phase

In this phase the company prepares administratively and then makes a mapping of business processes that will be integrated into SAP. The manufacturing phase consists of Information Quality Dimensions, System Quality Dimensions and Service Quality Dimensions. The dimensions of information quality are measured in terms of Accuracy, Completeness, Timeliness, Relevance and Format. While the dimensions of system quality are measured in terms of Easy to Use and Easy to Learn. And the dimensions of service quality are measured in terms of Speed of Response, Guarantee, Reliability and Empathy.
The user's perception of the quality of information from SAP is dominantly positive. But in the Exim section there is still a need for additional features such as outstanding goods and updating items to be processed for shipping to the warehouse. The outstanding goods feature is needed to find out the items that have been processed for payment but cannot be sent so that they can be given a warning or reminder to the vendor. While updating items is needed to process information to customs if the item is not purchased domestically.
The user's perception of the dimensions of system quality shows a positive thing. Staff of Finance and Accounting, Purchasing and Exim can use SAP easily and quickly after 3 months accompanied by a trainer.
The user's perception of the dimensions of service quality all shows a positive thing. Basically, every user feels the good service quality of the SAP system. Thus, it will increase the good performance of users because they get satisfactory service quality.

b. Usage Experience Phase

The phase of user experience is measured in terms of dimensions of use and user satisfaction. From the results of the Usage dimension research it can be stated that each SAP system user is not fully dependent on the SAP system. This is because there are still old systems running and still being used during SAP system conversions. While from the User Satisfaction Dimension it can be concluded that the user's perception of user satisfaction is positive. This can be seen from user satisfaction on a system that is smoothly integrated into the current transaction. Makes it easy for every staff to carry out related tasks on current transactions.

c. Phase Impact of Use

The impact phase of usage is measured in terms of Net Profit Dimensions whose parameters are Productivity, Customer Satisfaction and Management Control. From the results of interviews with PT.Duraquipt Cemerlang's financial managers, who stated that employees work more productively and more efficiently, customers are satisfied with regular goods delivery and collection of receivables can be settled in accordance with the terms of sale and payment due after using SAP.

V. CONCLUSIONS AND RECOMMENDATION

Conclusion

Based on the results of the analysis and discussion that the author has done in the previous chapter, the conclusions that can be drawn in this study are:

1. The application of information systems before using SAP has been going well, but there are several important functions that do not work as they should. Such as authorization from the relevant section regarding the current transaction and the payment function with an automatic due date system.
2. PT. Duraquipt Cemerlang decided to convert information systems by using SAP for effective and efficient business processes. The conversion method used is the Staged Conversion method, because if something happens, the new part will be replaced with the old one. If there is no problem, then the new modules will be paired again to replace the other old modules. During the conversion process for approximately three months, SAP runs very well and the users are satisfied when using SAP.
3. The advantage of old system conversions with SAP is, first, management can find out how much revenue from accounts receivable will be collected so that it automatically increases company profits. Second, systems of authorization in SAP systems which allow purchasing parts not to release orders if there is no approval from the SAP system and the integration

between each parts of organization makes it easy to carry out transactions. Third, SAP have an effect on the productivity of their users, making business processes run smoothly and programmed also monitored effectively and efficiently.

Recommendation

Based on the conclusions above, the authors intend to give suggestion that can be taken into consideration by the company. The suggestion is that the company remains consistent in continuing the implementation of SAP because it is more effective and efficient in running business processes.

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AUTHORS

First Author – Firsty Anastasia, S.E., Magister Management of Accounting Information System, Faculty of Management Information System, Gunadarma University, emailnyafiry@gmail.com

Second Author – Dr. Izzati Amperaningrum, SE., MM, Magister Management of Accounting Information System, Faculty of Management Information System, Gunadarma University.