Design of Accounting Information System in Data Processing: Case Study in Indonesia Company

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***Abstract*—This study aims to determine the implementation of System Application and Product in Data Processing (SAP) in a company to provide solutions for companies to obtain reliable reports and improve performance in a company. This study uses the mixed method through interviews with resource persons who have work in well-known company. The data obtained were analyzed by the method of literature study from data on the internet. The results of this study indicate that many companies still apply manual systems in reporting, one of them is the lack of adequate technological facilities within the company so that companies cannot fulfill their business processes optimally due to not using integrated system that connected with each other.**

***Keywords*—Accounting; information systems; SAP; ERP; implementation of SAP**

I. Introduction

The world is currently growing in the world of technology is needed by companies to increase efficiency and achieve maximum accuracy. In the current era of digitalization, technological developments in the world are increasingly advanced, where these developments are increasingly modern and lead to the digital world, so that this has a major impact on various fields and sectors of activity [1]. Many companies especially in the business sector have grown and expanded, giving rise to a drastic increase in business competition. In its development, several companies demand to obtain accurate and relevant data and information in their business processes [2].

In the past, before the company technology used a manual recording system, the drawback of this manual system is that fraud and human error often occur, so that it is considered less effective and efficient. In addition, companies are often found that they cannot fulfill their business processes optimally [3], so that their records still often occur. The problem that occurs is because there are still many companies that do not have a system that is not connected to each other to get relevant reports [4].

According to Rosenboum there are five strategies in increasing company productivity that are effective and efficient that can be applied [5], namely changing management rules, changing the nature and composition of inputs, increasing new technology, increasing new products, and expanding new markets. Information systems can support two of the five methods above, namely multiplying new technologies and expanding new markets. The solution is to apply System Application and Data Processing (SAP) software which combines the two systems, namely accounting and management information systems that can meet the needs of all parts of the company. Over the last few years, several companies have switched to using applications or software known as System Application and Data Processing (SAP) which are considered to be able to meet business needs more efficiently and effectively so that it is easier for all departments to run the company.

System Application and Data Processing (SAP) is an enterprise resource planning (ERP) software. ERP is an application that can integrate to meet the company's operational needs efficiently which consists of various sets of modules such as manufacturing, finance, HRD, material management, sales, and distribution that are connected into one database. Therefore, System Application and Data Processing (SAP) has developed and is recognized by manufacturing companies, because it is considered to greatly increase effectiveness and efficiency in various matters related to company operations because it is only integrated in one

software so that the settings will also be easier compared to using manual way [6]. This system is expected to provide solutions for companies to deal with all problems that occurred previously and can help employees to work more efficiently. In addition, SAP has other uses such as being able to improve corporate governance data to provide confidence to investors by looking at overall performance through a real time transaction system [7].

In recent years, it is being discussed that many companies have applied SAP to help meet their business needs. According to data from reference sites, there are many ERP systems emerging, but as many as 80% of companies in Indonesia have applied SAP as their ERP system to facilitate their business processes [8]. Several leading companies in Indonesia have applied ERP including PT Pertamina, Starbucks, Astra International, Erafone, Bank Mandiri, PT Garuda Indonesia, Telkomsel. Blue Bird and many others. Digital transformation is not just an alternative but a must for all lines of the company [9].

Three phenomena of applying SAP in the company: First, in about 50 years ago, the most phenomenal technological development was the emergence of the internet, where the internet is a technological development that combines telecommunications and computer technology [10]. Therefore, many companies are now applying SAP in their companies to be able to compete nationally and internationally. So that all companies are required to keep up with global developments by adopting more capable technology such as using SAP as a new breakthrough so that the company can maintain its existence and be able to compete at the national or global level [11]. Second, according to Billyan and Irawan the phenomenon of applying SAP has begun to spread throughout Indonesia, both from service and manufacturing companies, because the use of ERP itself can be used to analyze the consequences that hinder all processes within the company can be investigated [12]. Third, the phenomenon of the application of SAP has been applied to companies in Indonesia and outside Indonesia. This happens because there are some problems in receiving information so far it is considered less than optimal because it is considered less effective, one of which is the application of information technology that is less than optimal. In a company, the company needs information that can be used to make good and fast decisions. Therefore, through this background the researcher trying to find a solution for companies that combine data and technology to record systemically to get reliable reports.

Based on the description above, this research intends to study “Design of Accounting Application Information System and Product in Data Processing in Indonesia Company”. Researchers want to examine whether the application of SAP in the company can help productivity and efficiency in the company’s operational processes.

a) Is SAP really needed by the company?

b) Is SAP able to reduce fraud and human error and increase efficiency in companies that apply SAP

c) Is the costs incurred to install SAP be balanced with the results obtained by the corporation in terms of accuracy.

II. Literature Review

A. Grand Theory

The researcher raised one of the theories that could underlie the formulation of the problem, namely by using the Agency Theory [13]. Agency Theory is a theory that explains the relationship between the two parties, namely the company management (agent) and company owner (principal). Under certain conditions, the owner of the company, namely the principal, always needs information related to the company's activity processes. Through reports that have been prepared by the agent, the company owner (principal) can also receive the information need and provide an assessment of performance within a certain time. In research, there is a discussion that is under agency theory, that statements regarding understand the problems that occur between company owners and agents in giving reports in a company [14].

B. Accounting Information System

Accounting Information System is the root to obtain information quickly and reliable. Fast means that the information obtained is proven to be really actual and accurate the time. While accurate is based on adequate and reliable evidence accountable for the truth. The presence of an accounting information system can help company to obtain reliable information, and obtain information which is useful in making a good decision under certain conditions. The following describes the notion of an accounting information system based on the opinion of some experts, namely:

a) Bodnar and Hopwood [15], an accounting information system is a combination of resources, such as individuals and equipment, designed to convert financial and other data into useful information to various parties in making a decision.

b) Widjajanto [16], the accounting information system is a layer of various documents, communication tools, personnel implementers, and various reports designed to transform data financial report into financial information.

Based on the above definition, it can be concluded that the accounting information system is combination of resources such as individuals and equipment designed to manage financial data and other data into useful information in making decisions in controlling, planning, and managing the organization.

According to Azhar Susanto listed in his book consists of 6 (six) Accounting Information System indicators [17], namely:

a) Hardware is hardware that is used to combine, process, store, enter, and produce data processing things to provide information some information.

b) Software is a combination of various programs that are used to process data application on the computer.

c) Database is a system used for data collection or writing by using computer media to support information so that it is always available in real time.

d) Procedures are various activities that are carried out repeatedly with techniques use the same method. Consistency is the main key in the process of an organization.

e) Brainware is a human resource that participates in the process of making a product information system, which consists of combining, processing data, distributing data to the use of data for the needs of an organization or company.

f) Communication Network is the use of electronic means to transfer both information and data from one location to another.

C. Enterprise Resource Planning (ERP)

According to Chofreh et al. [18], Enterprise Resource Planning (ERP) is an information system designed to integrate all company activities both internally and externally to the company that allows access to data quickly and reliably. This system includes manufacturing, distribution, personnel, project management, payroll, and finance. ERP is also a shortcut from technology information to assist companies in managing company operations by implement a shared database. So that the presence of ERP can support the productivity and operating efficiency of business processes by integrating business transaction management activities such as sales, manufacturing, marketing, finance, accounting, logistics, and resources. They also argue that there are three reasons why ERP systems are developing very rapidly lately, including the development of globalization, the era of the 2000s, and the need for information integration better.

Fig. 1. ERP.

The success of applying ERP in the company, according to Pabedinskaite [19] on the research he did in his book entitled "Factors of successful implementation of ERP systems". He revealed that there are 16 (sixteen) indicators in determine the success of ERP implementation, Fig. 1. Here are 16 factors in determining ERP implementation success:

a) There is good communication from one department to another.

b) Conduct optimal job training.

c) There is support from the company's superiors.

d) There is an equivalence between the company's business and the application of technology.

e) There is employee involvement in the project.

f) Reorganizing business processes.

g) Good organization in transferring data.

h) Competent external consultant.

i) Organizational change management.

j) Develop an organized and measurable plan.

k) Conduct periodic and tight control on the implementation of ERP within the company.

l) Involvement from management.

*m)*Employee engagement.

n) Measurable company targets.

o) In accordance with the needs analysis of the organization.

p) There is a good relationship with suppliers.

D. System Application and Products in Data Processing (SAP)

According to Gunawan and Ikhsan [20], System Application and Products in Data Processing (SAP) is an ERP software that is integrated between its various modules such as SD (Sales Distribution), MM (Material Management), FICO (Financial and Controlling), HR (Human Resource Management), CO (Controlling), PP (Production Planning), and PM (Plant Maintenance) and others. Because the system supports integration, making software This is often used by many large companies in order to achieve their goals company, but by installing SAP in the company has a weakness, namely: requires a large amount of money, starting from taking care of the license, SAP training, software etc. SAP (System Application and Products in Data Processing) was first discovered in 1972 in Walldorf, Germany, by Dietmar Hopp, Hans-Werner Hector, Hasso Plattner, Klaus Tschira and Claus Wellenreuther who were former employees at IBM. SAP generally has three functions, namely: Functional (for background in finance, accounting, HR, ABAPer (for programmers), Basis (for admin work). The use of SAP is one of the most famous ERP software in the world and reliable by companies in the world including Indonesia because it has been recognized that SAP is the one of the most superior media and can be configured according to needs business. Here are the facts about SAP ERP:

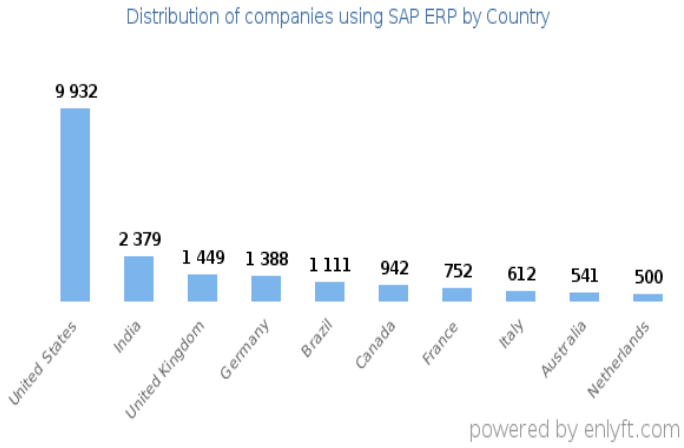

Fig. 2. Top Countries that used SAP ERP.

Based on the picture, Fig. 2, it shows that 36% of SAP ERP users are in the United States, 9% in India and 5% in the UK.

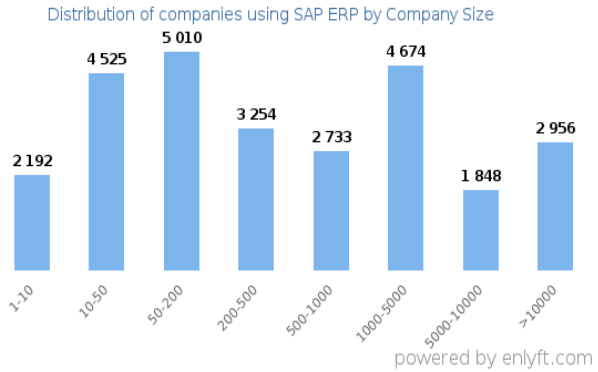

Fig. 3. Distribution of SAP ERP.

Based on the graph, Fig. 3, it shows that of all those who use SAP ERP, 25% are small customer (<50 Employess), 40% are middle, and 35% (>1000 employee).

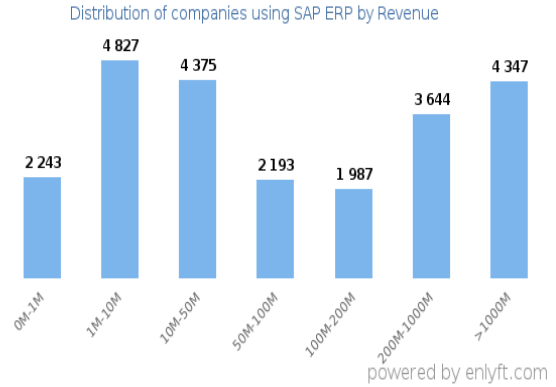

Fig. 4. Distribution of SAP (Revenue).

Based on the graph, Fig. 4 shows that customers who use SAP ERP, 47% are small customers (<$50 Million), 10% are middle, and 33% are large (>$1000 million).

E. Theoretical Framework

The Effect of SAP/ERP Implementation on the Company

SAP/ERP needs to be implemented by the company. As we know that when the world is now leading to the digitalization era, which means that everything has turned to technology sophisticated, so that it requires many companies to switch use technology to maintain its existence. In addition, it is often found that. Many companies still do not have a system that is connected to each other. So, it has weaknesses, one of which is the difficulty of connecting between one department to another, recording reporting is still common errors due to human error, inefficient, and so on. To that end, the application of SAP/ERP is very necessary to overcome problems in the business world because through. This platform is making a big impact for companies such as increasing productivity, efficiency, reliability, punctuality and so on. On the other hand, if the company does not use existing technology such as SAP/ERP then the company will allow frequent errors and result in the company being unable to compete on a global level. According to Jacobs and Whybark [21], "ERP is the technology e-business, an enterprise-wide transaction framework with links to processing sales orders, inventory management and control, planning and finance production and distribution". ERP is a direct result and extension of manufacturing resource planning and as such, covers all MRP II capabilities. ERP is superior because:

a) Implement a set of resource planning tools across all companies.

b) Presents real-time system integration of sales, operations, and financial data.

c) Linking resource planning approaches to extended supply chains customers and suppliers.

III. Research Methodology

According to Saunders et al. [22], the object of research is an attribute that explains about what and who is the object, where, and when the research is carried out. According to Sekaran and Bougie [23], the object of research is the names of research variables, refers to the identification of problems, hypotheses, and definitions contained in the previous chapter. The object of research here includes the SAP software. Method is derived from the Greek, namely methodos, which means way. Besides it's a method that comes from the Greek, metha (to pass or through), which means the way or way that must be traversed to achieve a goal. Whereas research which examines the problem by collecting facts. Method that researchers used for this research is qualitative method. Qualitative method is research that aims to understand the phenomena experienced by research subjects for examples of behavior, perceptions, motivations, actions and including in the type of qualitative method that uses data results in the form of sentences that can answer the problem formulations such as "what", "how", and "why".

This type of research is casual research. Casual research aims to knowing the causal relationship that occurs from each variable to get facts from a phenomenon and seek factual information about the application of the SAP. According to Lind, Marchal, and Wathen [24], the general environment in the organizational environment is a broad external condition that can affect the organization and affect indirectly to organizational performance. According to Nurunnabi [25], the macro external environment includes several factors including economic, political and legal conditions, socio-culture, demography, technology and global conditions that affect the organization. General environmental changes may not have a major impact on environmental change; however managers still have to pay attention when planning, organizing, directing and controlling business activities:

Fig. 5. The Star Model.

In the Star Model, Fig. 5, it is shown that there are several variables related to the implementation of SAP. These include Human Resources Management related to the Reward System and then connected to the Business Processes and Structures generating Strategy. The components in SAP include the following:

1) SAP Financial Accounting
2) Controlling (CO)
3) Human Capital Management (HCM)
4) Production Planning (PP)
5) Project Systems (PS)
6) Sales and Distribution (SD)
7) Materials and Management (MM)
8) Quality Management (QM)
9) Plant Maintenance (PM)

IV. Discussion

The author conducted module research in SAP to see if this system has been appropriate in the organization. The example below is one of the modules in SAP Hana where there are CO and FI modules in the finance module. Master data must pre-set according to company needs. After the master data has been completed is set, the accounting party does a business mapping and the output is universal journal, Fig. 6.

Fig. 6. Central Finance System Landscape.

We can see more about the FI posts as shown below that the activities manufacturing can be recorded in a system to be processed into information. For example, when the warehouse receives physical inventory, this must be recorded properly in SAP. GR (MIGO) must be made when the goods have been received in good condition. This has an effect when the invoice arrives, the accounting will call the PO number to verify payment. In the initial setup stage of the SAP system, we must ensure that the cost element, cost center, orders, and profit center are correctly summarized in SAP. Consistency is required in this is because we need to ensure that historical data can be used as a basis for do the analysis.

Likewise with the initial settings on the manufacturing side, we need to ensure that the physical stock and stock in SAP is correct and suitable. From the accounting side, we need ensure that the initial settings for tax calculations are in accordance with tax regulations that apply in Indonesia. It's better if the initial SAP settings are conditioned to be able to load supporting documents systemically. This will avoid a long time to search hardcopy documents.

The next stage is to determine the user in each SAP module. This is important because Segregation of Duties needs to be prioritized, meaning that everyone has a responsibility Answer each according to their job role. Therefore, access to SAP too tailored to the needs of each user. Not everyone is granted access as "superusers". A review of the Segregation of Duties should be carried out once a year. This is to avoid fraud. The company's advantages in using SAP as an ERP are as follows:

a) There are various types of modules in SAP that have the ability to: supports all transactions and each of these modules will work in conjunction with one another with the others.

b) SAP is also supported by a NetWeaver platform that supports development and logistics software.

c) SAP has a programmed, which will make it easier for developers to implementation of business logic.

d) All data in SAP can be stored in 1 server for a long period of time and can be accessed by various parties when needed.

e) SAP can be modified according to company needs. This means that the modules in SAP are not a locked module but a module that can be modified.

f) Allows integration globally.

g) Reducing the level of complexity of applications and technology.

h) Helping the smooth supply chain and integrating the results into one with financial reports.

i) Reducing the need to update data continuously.

j) Facilitating communication relationships internally and externally, inside and outside company.

In field practice, we can find that there are still many users who do not understand how to use the SPA. Usually, SAP will provide a session training and training so that users can be more familiar with using SAP. The following preparations need to be done before going live:

a) Project Preparation, team formed for SAP project initial planning.

b) Business Blueprint, establish a shared understanding of how the company intends to implement SAP in support of their business.

c) Realization, in this phase, the implementation of the standard SAP methodology is carried out in two ways: packages base configuration (main scope) and final configuration (remaining scope). During this phase the solution is also tested.

d) Final Preparation, the goal is to complete the final preparations including technical testing, final user training, system management and migration activities.

e) Go Live Support, this phase is moving from the pre-production environment to the production phase.

However, the SAP system also has drawbacks, including:

a) The implementation time and costs are not small.

b) If careful preparation is not made, then the implementation process will become delayed.

c) Users are not necessarily prepared to receive and operate SAP in time short

V. Conclusion

Based on the description above regarding the application of SAP in the company, show that SAP can optimize business processes so that it can obtain information with fast and easy because it only has one integration that connects one with the others. SAP can help companies to reduce fraud and errors, so employee productivity increases. SAP will have a positive and significant impact on decision making. Looking at the current state of development, it shows that the world is getting more advanced and using very advanced technology. For this reason, the application of SAP in the company is a reliable solution for companies because it is only integrated in one system. SAP presence also provides many benefits for businesses, such as being able to help overcome unresolved business problems, get information in real time, reduce fraud or errors, and can obtain information quickly.

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