

Accounting Information System Design (case study: firm in the fishing industry)

Perancangan Sistem Informasi Akuntansi: Studi Kasus Perusahaan di Industri Perikanan

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Abstract

This study aims to evaluate and provide a recommendation about the implementation of an Accounting Information System related to the components and the procedures in the respective business cycle. The object of this research is PT. YYY, is a company engaged in the fishing industry. The method conducted in this research is descriptive qualitative with a case study. The data collection process is taken from observations and interviews. This study compares theory and practice in PT. YYY with the purpose of providing a recommendation for future development. By using the Accounting Information System theory as the benchmark, we suggest the company use a cloud-based Accounting Information System. We recommend Odoo Software as one of the great options, as Odoo has standardized Accounting Information System components and features. Implementing this platform could help the company to improve its Accounting Information System, as it is such a crucial and fundamental component that the company ought to have to be able to sustain and grow in the future

Keywords—Accounting Information System, Cloud-Based Accounting, Fishing Industry, Odoo Software

Abstrak

Penelitian ini bertujuan untuk mengevaluasi dan memberikan rekomendasi implementasi Sistem Informasi Akuntansi terkait komponen dan prosedur pada masing-masing siklus bisnis. Objek penelitian adalah PT. YYY yang merupakan perusahaan yang bergerak di bidang industri perikanan. Metode yang dilakukan pada penelitian ini adalah deskriptif kualitatif dengan studi kasus. Proses pengumpulan data diambil dari observasi dan wawancara. Penelitian ini membandingkan teori dan praktek di PT. YYY dengan memberikan rekomendasi untuk pengembangan ke depan. Dengan menggunakan teori sistem informasi akuntansi sebagai tolok ukur kami menyarankan perusahaan menggunakan sistem informasi akuntansi berbasis cloud. Kami merekomendasikan perangkat lunak Odoo dimana memiliki komponen dan fitur Sistem Informasi Akuntansi standar. Menerapkan platform ini dapat membantu perusahaan untuk meningkatkan Sistem Informasi Akuntansi karena ini adalah komponen yang sangat penting dan fundamental yang harus dimiliki perusahaan untuk dapat bertahan dan tumbuh di masa depan.

Kata Kunci—Industri Perikanan, Sistem Informasi Akuntansi, Software Odoo

1 INTRODUCTION

Indonesia has the world's largest maritime by-line and the second-longest beach after Canada, at 81,000 kilometers. The marine region covers around 5.4 million km² and dominates Indonesia's 7.1 million km² territorial area. As a result, Indonesia has enormous fish resources distributed throughout the country [1]. North Sulawesi is one of Indonesia's provinces with significant fishing potential. The province has made the outcomes from operations in marine fisheries as one of the featured items to boost its revenue [2].

Bitung is one of the biggest industrial cities for North Sulawesi, particularly in the fishing industry [3]. Having been called Kota Cakalang, this city can help society by meeting their needs in terms of food and potentially advancing to boost the economy in its domicile region by enhancing local firms that engage in the fishing industry. The revenue from fish catching in Bitung generates 147,069.8 tons with the production value of 1.692 billion rupiahs in 2011 [4]. The source of revenue in society's enterprises depends on the fishing industry, with the absorption for over 7000 labors, causing this industry to be the sustainability pole of the economy for local governments in terms of taxes or its revenue [5].

However, the condition of firms in the fishing industry in Bitung needs more attention. By having direct observation in PT. YYY, manual bookkeeping system is the strategic issue and the main general problem in realizing the sustainable fishing firms in Bitung. Disadvantages of manual accounting include the significant time investment required to record and report accounting cycle data on paper [6]. Moreover, such utilization is prone to frequent based errors and mistakes during the task completion process. Therefore, manual accounting systems were frequently associated with security and fraud risk.

Therefore, Accounting Information System is one of the crucial tools a company could develop, expected to help management plan, and carry out its operational activities to help firms achieve their goals and for the sake of their growth [7]. As the introduction of the Accounting Information System for the company, this study is expected to help the company produce higher quality information for decision-making purposes and minimize unhealthy company operations and unnecessary expenses.

The purpose of this study is to know the mechanism of the accounting reporting in PT. YYY, to evaluate the implementation of accounting reporting in PT. YYY, and to give a possible recommendation of an Accounting Information System for PT. YYY.

2 RESEARCH METHODOLOGY

2.1 Information System

According to Suryantara an information System can be defined as a human crafted system that consists of various operation components inside the organization to provide useful information [8]. An information system is known as a data processing system, is an artificial system that typically consists of a set of components – either manual or computer – that work together to collect, store, and manage data as well as provide information to interested parties as users of the data [7]. Meanwhile, Turban et al. (2006) describes Information Systems as the most computerized information system, a process that collects, processes, stores, analyses, and disseminates information for specific objectives [9]. Because most information systems are computerized, the author must understand what a computer-based information system is. Based on some of the definitions of Suryantara et al. (2014) information can be defined as a system developed by humans, either manual or online computerized, that conducts the act of gathering, storing, and presenting data into meaningful information for internal and external users [8].

2.2 Accounting Information System

The definition of an accounting information system is a system that strives to collect and process data and report information linked to transactions and finance [7]. Recording activities

and cash disbursements to the journal can be used to process the transaction in question. Bodnar et al. (1996) defines an accounting information system as follows: "An accounting information system (AIS) is a computer-based system designed to transform accounting data into information" [10].

It can be inferred that an accounting information system (AIS) is a system designed to execute data processing and information reporting operations connected to finance, both manually and computerized [7]. System accounting information can also be summarized as the most critical sub-systems that work together and are responsible for providing financial and transaction data-derived information to managers for internal reporting purposes, as well as to shareholders, the government, and other parties outside the company.

2.3 Component of Accounting Information System

Mulyadi (2010) and Romney and Steinbart (2016) explain the components contained within the accounting information system, such as:

2.3.1 Human Resources

Human resources are required to oversee other components within the system. Midjan and Susanto (2001) composes that within the accounting information system, users organize and oversee the existing system on a standard basis.

2.3.2 Procedure

A procedure is an arrangement of activities that are continuously carried out successively for each transaction that happens. Procedures are required to guarantee consistency and make it simpler for the human component to carry out its obligations. With the correct procedures, the existing system will run well.

2.3.3 Form

According to Harningsih (2006), form is a document that gives evidence of economic events and can be utilized to initiate the transaction process. The forms used to supply evidence of economic events are divided into internal and external forms. The internal form is used to confirm transactions that inside parties will utilize within the accounting information system while the external form is provided an internal party to verify that a transaction has taken place outside the company. On the contrary, this external form is used for internal parties to prove that outside parties have made transactions with the company.

In addition, Mulyadi (2010) and Romney and Steinbart (2016) explain the components contained within the accounting information system after form [12], [13] such as:

2.3.4 Data storage and access control

Data storage is a component that's utilized to store forms that are evidence of transactions. If the form is made in paper form, then the data storage could be a container and a place where the form can be stored and overseen, whereas in case form is in an electronic form, at that point the data storage can be within the form of a computer or hard disk. In addition, access control also needs to ensure that only authorize person that have access to company data.

2.3.5 Journal

Journal is a form that comprises records of financial transactions that are recorded chronologically and systematically. Journal consists of accounts or groupings of transactions, and the method of recording this transaction is called journalizing. Important details that must be considered in journalizing are transactions must be recorded based on an internal form that verifies the occurrence of the transaction, transactions must be recorded chronologically according to the in which the transactions happened, transactions must be recorded in debit or credit groups and recorded transactions must contain data related to those transactions.

2.3.6 *Financial Statement*

Financial statements are the outcome of the accounting process, or, in other words, high-quality data provided by accounting information systems for decision-making. In addition, interested parties can analyze the organization's capability to manage finances and provide services using financial reports. Monthly and annual financial reports are examples of financial reports that are produced over a period.

2.3.7 *Software used to Process Data*

Software that helps to process existing data is used to make it easier to run an accounting information system, especially in the process of recording journals, ledgers, and financial reports.

2.3.8 *Internal Control*

Internal control is a design of organizational procedures that encourage the creation of management approaches to create operational efficiency, ensure assets, and, most importantly, avoid misappropriation of company resources. There are several main internal control procedures every company should consider, according to Hall (2011) there are [14]:

a. *Transaction Authorization*

This activity is done to make sure that only valid transactions will be processed, which apply to one of the examples, the Credit check procedure. The objectivity of this activity is to make sure, with a checking procedure from the authorized person, that the customer is worthy of giving the approval for the credit sales.

b. *Segregation of duties and Supervision*

This activity should be done to make sure not a single person is taking care/ responsible for the whole or a couple of the entire process. This may apply to the company's organization structure to provide different functions for a different individual, to prevent fraudulent activity when there are more chances of that action, when the individual is responsible for the whole line business process.

c. *Accounting Records*

The accounting documentation is the source of information, the record on every transaction happened is the essential activity of accounting department, that furthermore will impact to the effective and reliable information for the decision making.

d. *Documents storing*

The legal documents derived from each business transactions can act as an asset to the firm, because it provides some confidential information regarding all activity and transactions of the company. This also will be the source and evident for audit activity, an unorganized storing, unsafe and groupings could lead to a lost or stolen document. One example preventive action is to provide prenumbered documents for every business activity document.

This research was carried out by using a study case research method to obtain deeper information and understanding about the phenomenon that happened on the research subject. Study case is the study of the specificity and complexity of a single case and trying to understand the case in a particular context, situation, and time [15]. Furthermore, Creswell (2010) explains that a study case is a research strategy in which the researcher carefully investigates a program, event, activity, process, or group of individuals. The cases were limited by time and activity, and the researcher collected complete information using various data collection procedures based on the allotted time [16].

Data collection was conducted with a direct interview with the finance manager and all the staff that were directly involved in using the accounting information system. Collection of

data also includes observations where the researchers were directly involved in the business activity of PT YYY for two months to learn the accounting information system that was implemented in PT YYY. Collected data from the interview and observation was presented in a narrative description accounting information system and a comparison between the theory and practice implemented in PT YYY.

Data from this research were analyzed using descriptive analysis technique where the collected data from interviews and observation. Then comparing the aspect of accounting information system theory and practice in PT YYY.; Assess the risks related to the implementation of the accounting information system in PT YYY and provide suggestions for improvement related to the implementation of the accounting information system in PT. YYY.

3 RESULTS AND DISCUSSION

3.1 Comparison of theory and actual field findings

The researchers compare the existing theory and the findings of the field at PT YYY. Based on the results of the comparison of theory and actual field findings, it will then be concluded whether all information systems in the business process are considered appropriate, inappropriate, or in between. The terms appropriate, inappropriate, or in between are explained below: a. Appropriate - The results of the comparison show a linear or matched between the theory found in this study and the actual condition of the company. b. Inappropriate - The results of the comparison show an inverse relationship between the theory found in this study and the actual condition of the company. c. In between - The results of the comparison show only a proportion of aspects in the actual condition of the company that match the theory found in this study.

Based on the result of analyzing and comparing, the researchers will conclude if the actual condition of the existing Accounting Information System in the company whether it will be considered efficient and effective or not. The following is comparing theory and field findings at PT. YYY. Table 1 contains a comparison of theories and actual condition regarding the accounting information system components, while table 2 contains the effective and efficiency theory to the findings.

Table 1 The Accounting Information System Components Comparison Table

NO	THEORY	ACTUAL CONDITION	APPROPRIATENESS
1	Human Resource Human resources are required to oversee other components within the system. Susanto (2004) composes that within the accounting information system, users organize and oversee the existing system on a standard basis [17]	Based on our findings, there are people who run accounting information systems, who manage the data related to the company's business, but in can still be considered insufficient as there are still many that could be added to perform a proper control action such as segregation of duties as also part of the	In Between

		components of Accounting Information System	
2	<p>Procedure</p> <p>A procedure is an arrangement of activities that are continuously carried out successively for each transaction that happens. Procedures are required to guarantee consistency and make it simpler for the human component to carry out its obligations [11]</p>	Based on our findings, PT YYY doesn't have any agreed written procedure (Job Description) to make sure every employee knows their task and responsibility as well as the limitations to their position and tasks.	Inappropriate
3	<p>Form</p> <p>According to Harningsih, (2006) Form is a document that gives evidence of economic events and can be utilized to initiate the transaction process. The forms used to supply evidence of economic events [18]</p>	Based on our findings, the company have their documents such as sales order, purchase requisition, goods receive form, etc. However, some document such as invoice do not have specific information such as payment terms for credit transaction.	In between
4	<p>Data storage</p> <p>Data storage is a component that's utilized to store forms that are evidence of transactions. If the form is made in paper form, then the data storage could be a container and a place where the form can be stored and overseen, whereas in case the form is in an electronic form, at that point the data storage can be within the form of a computer or hard disk. In addition, access control also needs to ensure that only authorize person that have access to company data [11].</p>	Based on our findings, PT YYY have the component such as container and cupboard. For electronic data, PT YYY have the data storage in form of flash disk, hard disk, and computer storage. PT YYY have a poor of access authorization to the company data where almost all the employees can access the data of the company	In between
5	Journals		Inappropriate

	Journal is a form that comprises records of financial transactions that are recorded chronologically and systematically [11]	Based on our findings, some company records related to financial transaction such as the record of the fixed assets. Every purchase of fixed assets, the accountant will only record it in the daily journal, and no record in the general ledger, that there will be no depreciation on the company's assets, by that the researchers could say that the journal of assets in PT. YYY are not recorded chronologically and systematically	
6	Financial statement Financial statement is financial reports that are produced over a period including statement of financial position, income statement, statement of cash flow, and notes to financial statement [11]	Based on our findings, as well as the observation that PT. YYY still didn't record its assets, the researchers conclude that the Financial Statement that will later be generate will lessen its usefulness as it considered not showing a true condition of PT. YYY.	Inappropriate
7	Software Software that helps to process existing data is used to make it easier to run an accounting information system, especially in the process of recording journals, ledgers, and financial reports [11]	Based on our findings, YYY used Microsoft Excell, that need additional time to operate rather than to use software platform such as Odoo that is already automatic journal feature to process their existing data through activities	In between

		such as recording journals, ledgers, financial reports, and other activities related to their business transaction	
8	Internal control There are several main internal control procedures every company should have such as transaction authorization, segregation of duty, accounting records, document storing [11]	Based on our findings, YYY doesn't have proper transaction authorization, segregation of duty, accounting records, and document storing related to their internal control	Inappropriate

Table 2 Effective and Efficiency Theory to the Findings

No	Theory	Actual Condition
1	Efficiency Theory. Accounting Information System can be said efficient if Internal Control are integrated entirely proper. A good documentation or a good accounting record can improve the efficiency as it can provide timely information to the management for decision making [18]	Based on the findings, there are still many components of internal control such as transaction authorization, segregation of duties, and a secure business documents storage, that PT. YYY has not yet been performed.
2	Effective Theory. Accounting information systems' effectiveness can be assessed on three different levels: The scope of the information. Financial and nonfinancial data, internal and external data, and information usefulness in predicting future occurrences are all included in the scope of information [19].	Information owned by PT. YYY, related to accounting records, it is still not representable enough to form a useful information, due to some of the transactions in PT. YYY has no appropriate record yet, fixed assets is one of other examples.
3	The timeliness and aggregation of the information. The ability of an accounting information system to meet information needs by generating systematic reports for the user is connected to its timeliness quality, and the process of gathering and analyzing data over a set period of time refers to aggregation of the information [19]	Because the low of internal control, PT. YYY has experienced a lost on the business transaction data, causing delays in making financial reports.

Based on the analyzed condition of the documentation of accounting transaction in PT. YYY, the researchers conclude that the Accounting Information System, the procedures, internal control, until the documentation of accounting transaction is still not the ideal Accounting Information System requirement for a public entity. So can be said that the accounting transaction documentation position of PT. YYY still required more improvement or transformation to be called effective and efficient.

Based on the theory and the actual condition observed in PT. YYY, the researchers find that there are several factors in some specific area in the business cycles of the company that could potentially carry a significant risk:

1. The risk of not having a consensus procedure. Based on the findings and observation, the process of some cycle is not conducting a consistent and agreed procedure by the management of PT. YYY. The uncertainty and inconsistency of a procedure could lead to misunderstood, high human errors, and unnecessary work performed that could lead to an ineffective business process.
2. The risk of having incomplete form components. Based on the observation and evidencing some incomplete form, specifically the sales invoice, the researchers found a lack of important components in invoice that shouldn't be missed when issuing a sales invoice, that is a payment terms column. The risk of not having any payment terms could lead to a high uncollectible debt from the customer, because no written legal payment terms that the customer should be submissive to.
3. The risk of having unsafe document storage. We observe the storage of the documents in PT. YYY require no locks or any safety tools to secure the documents. If there are no control and preventive action be taken, this could lead to any form of damages, lost, or even theft of the documents.
4. The risk of not having chronologically and systematically financial transaction in recording company's assets. Based on the interview result, that is clearly said by the management, that the fixed asset purchased in PT. YYY are not recorded clearly and systematically. There is no legal list of company's fixed assets, so there is no assets depreciation could be recorded. This will cause the company to be unable to perform any control and maintenance actions on these assets.
5. The risk of not having control actions in some of the business cycles such as segregation of duties. When there is no segregation of duties in the company, the risks of any form of fraudulent actions could be easily performed.
6. The risk of not having control activity such as transaction authorization. Based on the interview result, PT. YYY do not have any special function to check customer's creditworthiness before the sales is being executed. This can cause the company to be unaccountable if there are customers who is in the end declares that they cannot afford or be irresponsible in paying their debts.

3.2 Suggestion flow of the business process

3.2.1 Revenue Cycle

The researcher suggests that for the revenue cycle the management could separate each of the following function, Sales Department, Credit Department, Processing Department, Shipping department, and Accounting/Cashier department to perform an independent task, as a control to minimize any possible intended or non-intended fraud risks.

We suggest PT. YYY to improve the Revenue transaction records and documentation by using ERP Software, such as Odoo, that can help the documentation and business information flow to run in a systematic form, to minimize any possible fraud or human error, to help the management get a reliable, timely, and complete information for control and decision-making purposes. Suggestion for procedural flow in the revenue cycle can be seen in the revenue cycle flow chart in figure 1.

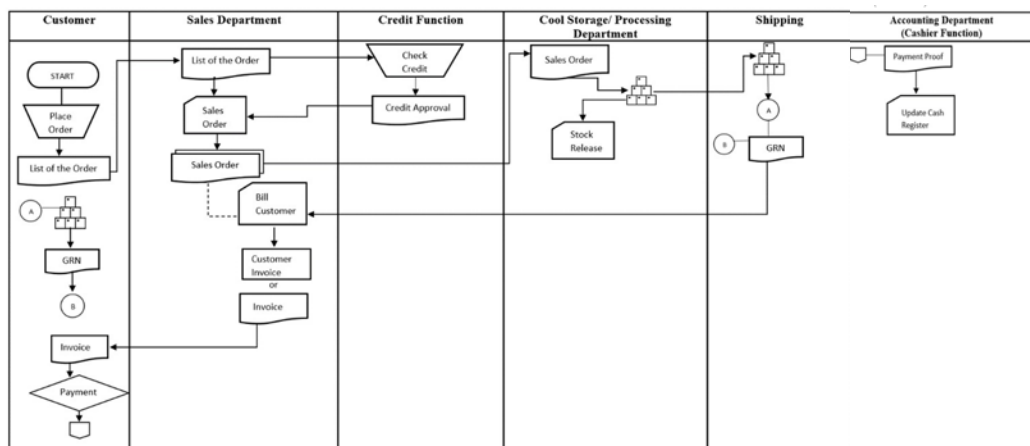


Figure 1 Suggested flow of Revenue Cycle

3.2.2 Procurement Cycle

We suggest that the management could separate each of the following function: purchase requisition, purchase order, receiving goods, and payment process. Each function must be equipped with the procedure and the adequacy of documents and supervision. There must be available detailed procedure, complete guides in the form of a narrative sequence of transaction input simulations on the Odoo Software. This will help users to do work with the new mechanism. Figure 2 below is suggested flow of procedures in the procurement cycle.

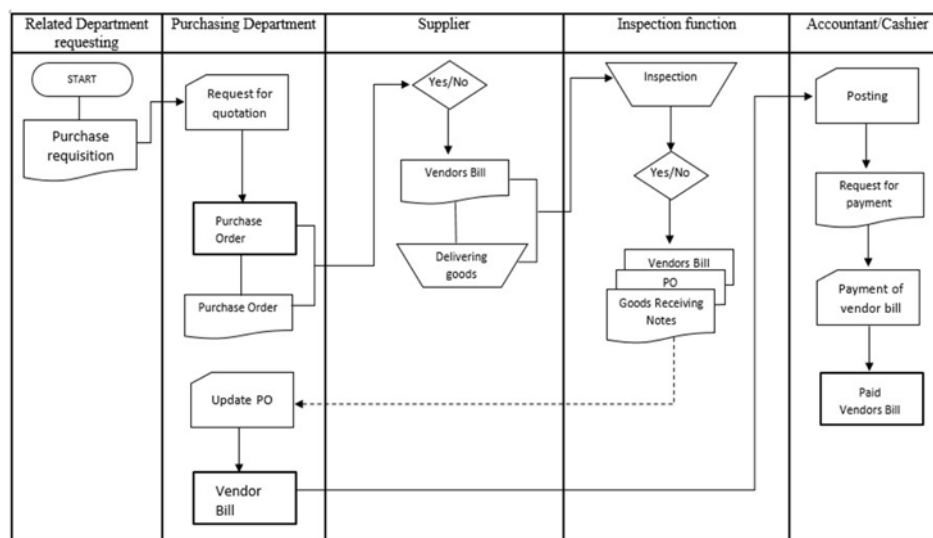


Figure 2 Suggested Flow Chart Purchasing Cycle

As suggestion are also addressed to other operational cycles such as the human resource management cycle, especially for the payroll system and the cash management cycle.

4 SUMMARY

Accounting Information System is a crucial tool for public business entity to provide accurate and useful information, as well for control, planning and decision-making purposes. The proper components and design of Accounting Information System is the fundamental element that every corporation ought to have.

Based on the results of research regarding the evaluation of the existing Accounting Information System at PT. YYY, through a comparison of Accounting Information Systems theory and the existing practice of the company, it can be concluded that PT.YYY has not implemented the complete form and elements of Accounting Information System. The implementation of the existing bookkeeping system in PT. YYY can still be considered poor, as it is found to be less effective and efficient in its role and use for decision making, implementation of control and audit, as well as for the retardment regarding the corporate taxes examination purposes. The company also have a deficient document storage management and security system that could result to a lost, destroyed, or misappropriated of the business documents and data.

In addition to the observation result, it can be clearly noticed that the human resources management of PT. YYY is still inept, as the numbers of company's workforces are still proportionally inadequate to the company's scale as a public business entity, leading to unclear and unstandardized job procedures and allocations. For example, one employee is tasked to perform two or more related tasks at the same time, in which case could rise the probability of human errors or any intended or unintended fraud in recording the business transaction of PT. YYY. The inexistence of a standardized, structured procedures, as well as the weak information system, allow the company to be ran as an individual owned family business which all decisions solely come from the individual judgement and considerations, and not from a reliable information derived from the implementation of proper Accounting Information System.

Therefore, improving the Accounting Information Systems by integrating Accounting Information System Software, as well as revamping its Human Resource management could help PT. YYY to achieve a better structured, effective, and efficient Accounting Information System, as one of the fundamental tools for the company to ride the opportunity to expand, and furthermore, be a leading company among the fishing industry firms in Indonesia.

5 RECOMMENDATION

It is a great opportunity to conduct more researches and exploration on the fishing industry in Indonesia in which, based on our observation, there are yet to be explored, seeing that there are only few researches conducted in this field, whereas there are enormous benefits that can be derived from the improvement of the fishing industry, as it is one of the largest sources of revenue for the economy in Indonesia. By doing more research in this industry, hopefully the next researchers may help the entities or parties that engage in this industry in Indonesia to expand, by improving or restoring their potential business nature systems, thus contributing to the economic development of Indonesia.

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