Analysis and Design of Accounting Information System with REA Approach to the Sales Cycle

by Cek Turnitin

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Abstract—This study aims to analyze and design an adequate Accounting Information System (SIA) on the sales cycle with the REA model approach (Resources, Events and Agents) in Tour & Travel companies in PT Permata Bakkah Mukarromah. The main activities in PT Permata Bakkah Mukarromah are the sale of Umrah travel services, special Hajj, halal tours, LA (Land Arrangements) and ticket sales. PT Permata Bakkah Mukarromah still uses a manual sales accounting information system. The data used in this study is primary data that takes directly from the source and secondary data are by collecting data and documents related to sales activities. The data obtained was used to identify REA data and analyze the current sales accounting information system that, then the analysis results in the identification of problems that are not in accordance with the theory. The results of this study indicate that the sales information system that is analyzed and designed with the REA model can identify the problems that occur in the flow of business activity in the sales activities that occur than generate recommendations for improvement of manual activities that are still not appropriate. The entity contained in the REA model is very suitable for the activities that occur in the company. The proposed sales system design is made in accordance with the results of the analysis and the needs of the company which then the relationships between entities are illustrated through the REA diagram.

Keywords: accounting information system, sales cycle, REA model

I. INTRODUCTION

In line with the development of science and technology, more and more problems are faced by companies, especially the increase in factors that affect sales. Marketing and sales are the main functions for the company. All companies want to market their products to be enjoyed by consumers and consumers' needs can be met. The success of a company in achieving planned goals and objectives cannot be measured only by the amount of its nominal value, but must be linked and linked to the use and implementation of accounting information systems as a means of controlling product sales. The company needs a system that will play a role in processing and processing sales data, namely sales accounting information systems. In business processes, financial accounting processes

(accounting) are generally carried out based on financial transactions that have occurred (historical cost), with the development of current computer technology financial information can be presented in accordance with the financial transactions that are happening (current replacement cost). The Resource, Event and Agent (REA) Model is a model conceptualized as a framework for building accounting systems in a shared data environment both within companies and between companies. The core features of the REA model are object patterns consisting of two mirror images that represent the input and output components of a business process (give-to-get), making it easier to form data models [1]. The data transaction cycle that occurs originates from the source (resources), the event (event) and the entity involved (agent) takes place in real time so that the financial transaction is no longer a historical transaction. REA models can be an efficient solution of existing problems. Analysis and design of the REA model can assist in implementing the system in accordance with the relationships of the entities contained in the REA model [2]. Computerized data recording is very necessary for companies, especially companies with large scale. There are still many companies in the field of Tour & Travel that have not used the system, one of which is PT Permata Bakkah Mukarromah. The company's sales accounting information system is still done manually, in other words not using a computerized system so there are many obstacles when processing data. The impact if the sales accounting information system is still manual which can be a trigger for cash fraud and sales data manipulation that is not transparent. Therefore, the importance of applying the sales accounting information system in order to provide convenience to the accounting department in the process of recording every transaction so as to avoid mistakes, fraud and loss of data.

II. LITERATURE REVIEW

A. Previous Research

Previous research was used as a basic reference for this research. The goal is to be able to find out the results of previous researchers and then study them in case of further development. Research related to the analysis and design of

accounting information systems with the REA model, at least 8 articles have been selected. The results of the study concluded that the system requirements that are constraints can be met by designing database modelling using the REA approach, database design of the sales cycle accounting information system, cash receipts using the REA model can be applied in organizations that are the object of research and can increase profits, make work effective, making it easier to record accounting and be an efficient solution. Accounting information system modelling that is oriented towards the REA approach is also useful in terms of organizational decision making. In general, the analysis and design of accounting information systems with the REA model make a very large contribution to the organization, but in terms of development and application also requires several risks including spending a lot of funds, strong willingness of all employees to use the computerized system as a whole, especially the willingness to never stop and get bored in learning and accepting technology, as well as a corporate culture that has been cohesive from top to bottom in organizational management to implement and develop sustainable technology also always consistently incur expensive and routine maintenance of technology.

B. Theoretical Basis

According to O'Brien and Marakas, a system is a group of interconnected components, with clear boundaries and working towards certain goals by accepting input and producing output which is the basic function in an orderly transformation process [3]. According to Hall, information is often interpreted as processed data where the information is determined by its effect on the user, not on its physical form [4]. According to Gelinas and Dull, accounting information systems are specialized subsystems of information systems for collecting, processing and reporting information relating to financial aspects of business events [5].

According to Rama and Jones there are five types of use of accounting information [6]:

1) Make an external report: The company uses an accounting information system to produce special reports to meet the information needs of investors, creditors, offices, taxes, government agencies and others. These reports include financial reports, tax returns (SPT) and reports required by government agencies that regulate companies in the banking and utility industries.

2) Support routine activities: Managers need an accounting information system to handle routine operating activities throughout the company's operating cycle.

3) Supports decision making: Information is also needed to support non-routine decision making at all levels of an organization. Examples include knowing which products are selling well and which customers make the most purchases. This information is very important for planning new products, deciding what products should be in stock and marketing the product to customers.

4) Planning and controlling: An information system is also needed for planning and controlling activities. Information about budget and standard costs is kept by the information

system and the report is designed to compare budget figures with actual amounts.

5) Implement internal control: Internal control includes policies, procedures and information systems used to protect company assets from loss or corruption and to maintain the accuracy of financial data.

According to Reeve, sales amounts are charged to customers for goods sold, both in cash and credit [7].

Financial Accounting Standards state that income from the sale of goods must be recognized if all the following conditions are met [8]:

- The company has transferred risks significantly and transferred the benefits of ownership of goods to the buyer.

- The company no longer manages or exercises effective control over the goods sold.

- The amount of income can be measured reliably.

- It is probable that the economic benefits associated with the transaction will flow to the company.

- Costs incurred or to be incurred with respect to sales transactions can be measured reliably.

The REA model is a development of the E-R model. REA was originally proposed in 1982 by Mc.Carthy as a general accounting model, and contains concepts of resources, events and agents [9]. The REA Model is a conceptual modelling tool specifically designed to complement the structure in the design of an Accounting Information System (SIA) database. This model focuses on the business aspects that underlie an organization's value chain activities [1]. Not all business activities are described in the model, in the REA model it is necessary to identify how the relationship between entities and entities should be included in the database [1]. The REA model classifies entities into three different categories: Resources obtained and used by the organization, business activities (Events) in which the organization moves, and agents (Agents) participating in these business activities.
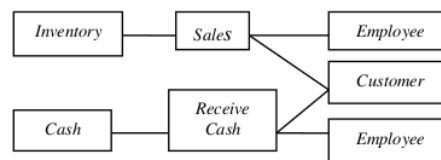
Source: [1].

Fig. 1. REA basic pattern.

III. METHODS

The research strategy used in this study is a descriptive method with a qualitative approach. According to Sugiyono, descriptive research is research conducted to determine the existence of an independent variable, either only on one or more variables without making comparisons or connecting with other variables (the independent variable is a stand-alone

variable, not an independent variable, because if the independent variable is always paired with the dependent variable [10]. From the descriptive explanation above, the writer uses a qualitative approach where the authors analyse, discuss, and explain and provide the results of the design of Sales Accounting Information Systems using the REA model using information the form of narratives that are not in the form of numbers. Qualitative research is research that is used to describe and analyse phenomena, events, social activities, attitudes, beliefs, perceptions, and individually or in groups [11].

Source of data used in this study are primary data and secondary data. Primary data is a data source that directly provides data to data collectors [10]. Meanwhile according to Anwar said primary data is the first data recorded and collected by researchers [12]. Primary data obtained directly from this study in the form of interviews by asking questions to the subjects studied. While secondary data are data sources that do not directly provide data to data collectors, for example data obtained through other people such as individual objects (respondents) or from an agency (agency) or data obtained through documents [10]. The data in this study were taken from data and documents that were already available so that researchers only collected them.

In the system analysis stage, the system analyst assists the user of information in identifying the information needed by the user to carry out his work. The system analyst must obtain information that is actually needed by the user of information in this system analysis stage, because the type of information needed by the user of this information is the basis for stepping into the system design stage.

System analysis can be divided into four stages:

- Preliminary analysis.
- Preparation of the proposed implementation of the system analysis.
- Implementation of system analysis.
- Compilation of system analysis report.

Design is the process of translating the needs of information users into alternative information system designs submitted to information users for consideration. The system design stage is divided into five stages:

A. Outline the System Design

In the development of an information system, the system analyst has obtained the following information from the system analysis stage, which is the information needed by the user along with the requirements inherent in the information, the area of the system and resources owned by the company (human, machine, money, materials and methods). Various alternative designs in broad outline of the information system consist of the design of each element of the information system building blocks, which includes the design of outputs, inputs, models, technology, databases and controls.

B. Outline of the Proposed System Design

The contents of the proposed system outline are as follows:

- In this section the system analyst links the requirements and objectives set by the user of information with the proposed design.
- Various alternative information systems developed to meet the needs of information users.
- Resources needed to implement and maintain each alternative system design.
- Critical assumptions or unresolved problems that might affect the final design of information systems.

C. System Evaluation

In the system evaluation stage, the system analyst determines the requirements that must be met by the technology block in carrying out the designed information system.

D. Outline of the Final Report of the System Design

Based on the results of discussions between the information user and the system analyst in presenting the design proposal in outline and evaluating the system, then an "Outline of the System Design Final Report".

E. Detailed System Design

System analysts do detailed designs for each building block of information systems into building information systems that are able to meet the information needs of users.

F. Compilation of the Final Report of a Detailed System Design

The detailed design results of this information system are presented by the system analyst in a written document called the "Detailed System Design Final Report".

IV. RESULTS AND DISCUSSION

A. REA Model Approach

1) Identification of REA entities in the Umrah sales cycle: As a first step, identifying events that occur in the sale of Umrah sales products are:

- Registration of pilgrims by filling out forms and submitting identity card.
- Payments made in cash are directly carried out in the office with the finance department and for payments made via transfer will be checked first.
- Making 3 copies of receipts (pilgrims, finance and accounting) for payments that occur.
- Cash payments will be deposited directly into the company's account by the finance department by including the payment receipt number and on behalf of pilgrims.

- The third duplicate receipt records sales, cash receipts and receivables.

- The process of inputting pilgrims data is entered into the estimated data according to the scheduled departure, this process is carried out by the administration of documents.

- Collect the required documents made by the document administration department.

- Collection of credit receivables before making a visa.

- Processing the estimated departure data into a manifest that is carried out by the operational department.

- Operational section to order tickets, hotels and buses from data manifest.

- The supporting documents for making a visa are prepared by the operational department along with the manifest data to the visa making supplier.

- Submission of Umrah equipment which is coordinated by the equipment section.

The second step is to identify the resources and agents that are involved in each event that occurs during the sale of the Umrah, namely:

- At the registration event the pilgrims involved are pilgrims, freelance marketing and sales employees. Resources in the event are registration forms because the tool forms used by pilgrims to register.

- At the payment event, making receipts and depositing money involved are pilgrims, marketing freelancers, employees of finance and accounting. Resources in the event are cash because in payment transactions, cash deposits and making receipts assessed are the amount of cash.

- In the event of recording sales, cash receipts and receivables involved are the finance and accounting departments. Resources in the event are cash because they are used in economic exchanges and their value can increase or decrease.

- At the event involved in the pilgrim data input into the estimated departure data and collect the completeness of the Umrah requirements documents are pilgrims, marketing freelancers, and document administration employees. Resources in the event are registration forms because in the registration form there is a checklist of the completeness of the Umrah requirements document and the selected Umrah departure schedule.

- In the event of billing receivables repayment involved are pilgrims, employees of finance and accounting. Resources in the event are cash because in payment transactions, depositing cash and making receipts assessed the amount of cash increased.

- At the events involved in booking tickets, hotels and buses and making visas are suppliers, employees of the operational, finance and accounting departments. Resources in the event are cash, because booking tickets, hotels and buses and making a visa requires payment to a third party resulting in a decrease in value of cash.

- At the event the delivery of Umrah equipment involved were pilgrims, employees of the equipment section and the accounting department. Resources in the event are supplies of Umrah supplies because the equipment reduces the available inventory.

2) Identification of REA entities in the special Hajj sales cycle: As a first step, identifying events that occur in the sale of special Hajj products are:

- Registration of pilgrims by filling out forms and submitting identity card.

- Payments made in cash are directly carried out in the office with the finance department and for payments made via transfer will be checked first.

- Making 3 copies of receipts (pilgrims, finance and accounting) for payments that occur.

- Cash payments will be deposited directly into the company's account by the finance department by including the payment receipt number and on behalf of pilgrims.

- The third duplicate receipt records sales, cash receipts and receivables.

- The process of inputting pilgrims data is entered into the estimated data according to the scheduled departure, this process is carried out by the administration of documents.

- Collect special Hajj requirements documents performed by the document administration department.

- Collection of credit receivables before making a visa.

- Processing the estimated departure data into a manifest that is carried out by the operational department.

- Operational section to order tickets, hotels and buses from data manifest.

- The supporting documents for making a visa are prepared by the operational department along with the manifest data to the visa making supplier.

- Delivery of special Hajj equipment which is coordinated by the equipment section.

The second step is to identify the resources and agents that are involved in each event that takes place on the sale of special Hajj, namely:

- At the registration event the pilgrims involved are pilgrims, freelance marketing and sales employees. Resources in the event are registration forms because the tool forms used by pilgrims to register.

- At the payment event, making receipts and depositing money involved are pilgrims, marketing freelancers, employees of finance and accounting. Resources in the event are cash because in payment transactions, cash deposits and making receipts assessed are the amount of cash.

- In the event of recording sales, cash receipts and receivables involved are the finance and accounting departments. Resources in the event are cash because they are used in economic exchanges and their value can increase or decrease.

- At the event involved in the pilgrim data input into the estimated departure data and collect the completeness of the Umrah requirements documents are pilgrims, marketing freelancers, and document administration employees. Resources in the event are registration forms because in the registration form there is a checklist of the completeness of the Umrah requirements document and the selected Umrah departure schedule.

- In the event of billing receivables repayment involved are pilgrims, employees of finance and accounting. Resources in the event are cash because in payment transactions, depositing cash and making receipts assessed the amount of cash increased.

- At the events involved in booking tickets, hotels and buses and making visas are suppliers and employees of the operational, finance and accounting departments. Resources in the event are cash, because booking tickets, hotels and buses and making a visa requires payment to a third party resulting in a decrease in value of cash.

- At the event the delivery of special Hajj equipment involved was pilgrims, employees of the equipment section and the accounting department. Resources in the event are special Hajj supplies because equipment reduces the available inventory.
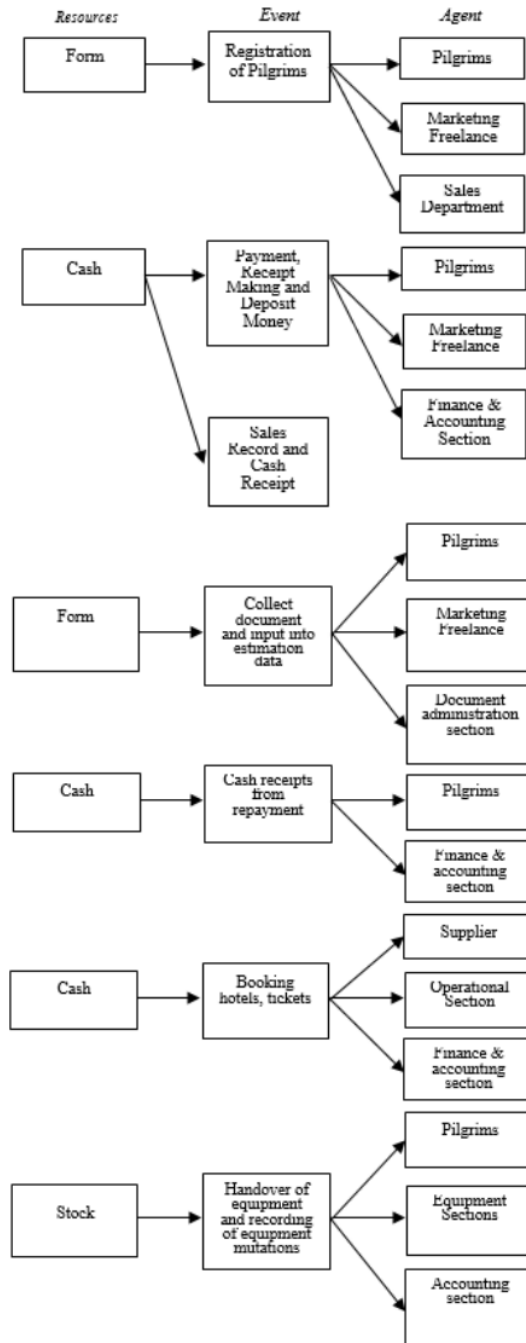
Source: Self-processed Data

Fig. 2. REA related to PT. Permata Bakkah Mukarromah's Umrah and Hajj sales cycle.

V. CONCLUSION

The process of analysis and design of sales accounting information systems at PT Permata Bakkah Mukarromah in order to provide useful information and can meet the needs of the company consists of several stages:

- The first stage is collecting data by conducting a Library Study and Field Research in order to obtain theories, data and documents that can support the analysis process in the discussion relating to the sales cycle accounting information system.

- The second stage is observation and interviews with HRD, sales and finance departments such as knowing the company profile, general description of the sales information system currently applied by PT Permata Bakkah Mukarromah and identifying problems that occur in sales activities.

- The third stage is to provide recommendations for solving problems that occur in sales activities and design proposals to be used as material in the design of a sales activity system application.

- The fourth stage is conducting interviews with the president about the results of the analysis and recommendations for the design of accounting information systems in the sales cycle.

The process of analysis and design of sales accounting information systems at PT Permata Bakkah Mukarromah with the REA (Resources, Event and Agent) approach consists of several stages:

- The first stage is collecting data by conducting Library Research and Field Research in order to obtain theories, data and documents that can support evaluation and analysis in discussions relating to REA.

- The second stage is observation and interviews with the sales and finance department to find out activities or related events related to sales activities so that the REA entity that can be identified and then designed the REA diagram by establishing relationships between entities during the sales cycle.

- The third stage is to identify the REA entity and establish relationships between entities which then produces an REA diagram of the sales cycle of PT Permata Bakkah Mukarromah which can be used as material in the design of an application of the sales activity system.

- The fourth stage is conducting interviews with the president about the results of the analysis and recommendations for the design of accounting information systems in the sales cycle with the REA approach.

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