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DESIGN OF CASH SALES ACCOUNTING INFORMATION SYSTEM USING RESOURCE EVENT AGENT MODEL AS TOOL IN EDDY MOTOR OFFICIAL WORKSHOP

Ardiprawiro, SE., MMSI
Accounting Information System Department, ardiprawiro@staff.gunadarma.ac.id, Gunadarma University

ABSTRACT

The role of information systems for accounting is very large because it changes from manual recording to computerized records, so the need for a good database design is essential. A database that meets the normalization rules is needed to support a computerized Accounting Information System (AIS). The Entity Relationship Model (E-R Model) is commonly used to design databases. However, drawing diagrams' rules are unclear, making it difficult for the data designer to form a database that meets the normalization rules. The REA model is a development of the E-R Model. The REA model was first conceptualized as a framework for building accounting systems in a shared data environment both within companies and between companies. The core feature of the REA model is an object pattern consisting of two mirror images representing the semantics of a business process's input and output components (give-to-get), making it easier to build a data model.
Keywords: REA, Accounting Information System

1. INTRODUCTION

Currently, information is crucial for all activities, including business activities, which are one of them. The advantage of information acquired for business purposes is that it serves as a foundation for decision-making. The information system makes it possible to quickly, promptly, accurately, and pertinently obtain the information that is required.

Because accounting transitions from manual recording to computerized records, information systems play a significant role in accounting. AIS (accounting information system) almost entirely accounts for all MIS in small businesses that only process financial data (management information system). As the biggest MIS subsystem in large organizations, AIS is a part of MIS.

According to Luki Syaifulloh (2011) in his research regarding the Design of Motorcycle Sales Accounting Information Systems at PT. Bintang Citra Motor Using Microsoft Visual Basic 6.0 and Microsoft SQL Server 2000 Based on Client Server, states that accounting information systems are subsystems that are interconnected and work together to provide the financial information needed by management in the decision-making process in the financial sector.

System developers who have worked with system development methodologies are aware of the benefits of object-oriented methodologies, such as the ease and efficiency with which the process of analyzing and designing information systems can be done thanks to the reusability of models and their ability to integrate different applications from various sources (interoperability).

Although it is still in its early stages of development, this method has been extensively employed for the creation of object-based programs. It is deemed necessary to introduce the basics in accounting information systems, especially for managing company databases, given that object-based programming languages, popular application programs, and the system development approach have a close relationship with the implementation of the system that is realized in the form of programming.

According to Grace T. Pontoh in her article (2012) entitled The Role of Accountants in Accounting Information Systems, it is stated that system design is a collaborative effort between accountants and system professionals/specialists. The accountant is responsible for the conceptual system while the system professional/specialist is responsible for the physical system. For example, the manager of the credit department will need information about customer credit to support his decision. The accountant determines

the nature of the information needed, its sources, purpose, and accounting rules that need to be applied. Systems professionals and specialists determine the most economical and effective technologies for obtaining, processing, and generating such information.

Currently, many businesses are already using accounting information systems that use business database processing, one of which is the Eddy Motor Authorized Workshop. The workshop, which is under the auspices of Yamaha Motor and is engaged in the sale of motorcycle services and spare parts, has implemented a commonly used approach in system development since 2009, namely an approach that emphasizes structured development using tools such as flow charts (Flowcharts), and data flow diagrams (Data Flow Diagrams), which later developed and shifted into a data model approach using entity relationship diagrams (Entity Relationship Diagrams) and is equipped with the creation of a data dictionary (Data Dictionary). However, in its implementation, the Eddy Motor Authorized Workshop still uses physical archiving methods, so sometimes they encounter problems such as damaged archived documents they store, such as damaged documents, lost documents, and others.

The approach that was commonly used in system development from the 1950s to the 1970s is an approach that emphasizes structured development using process modeling tools such as flowcharts and data flow diagrams. developed in the 1980s shifted to a data model approach using entity relationship diagrams (ERD) and equipped with the creation of a data dictionary. However, since the 1990s, the trend has changed in system development to combine process and data models into object models (object-oriented). It can be said that the object approach methodology is the result of the evolution of many previous methodologies, such as procedural, sequential, concurrency, and modular methodologies. The use of models to design information systems is very necessary as a basis, namely: Entity Relationship Diagrams, Data Flow Diagrams (DFD) models, flowcharts, etc. While each model has advantages and disadvantages, none of these models can capture non-financial data.

The REA (Resources Events Agents) model, created by McCarthy in 1982, was used to create accounting information systems. The relationship between business processes as well as financial and non-financial data can be captured by this model. The REA model aids businesses in creating databases that assist in managing the value chain activities of an organization. As a result, the majority of the activities in the REA data model can be classified as either economic commitments or exchanges.

Economic exchange is a value-chain task that directly affects the number of resources on hand. For instance, the company's sales activity will reduce its inventory while its cash receipts activity will increase its cash. Commitments are promises to engage in future economic transactions. An order from a customer, for instance, represents a commitment to future sales. Often, this kind of commitment is a crucial foundational step before continuing economic interaction. Tracking commitments to planning objectives is another requirement for management. For instance, when planning their business activities, service companies frequently use data from customer orders.

2. LITERATURE REVIEW

2.1. Accounting Information Systems for Cash Sales

According to George H. Bodnar and William S. Hopwood (2006), "an accounting information system is a collection of resources, such as people and equipment, designed to convert financial data and other data into information."

According to Soemarso (2004:160) in his book *Akuntansi Suatu Pengantar*, the definition of cash sales is as follows: "Sales of goods in cash are recorded as a debit to the cash account and a credit to the sales account. In practice, sales for cash are usually recorded in the cash receipts book.."

Based on the aforementioned two definitions, it can be said that a cash sales accounting information system is a system that gathers, organizes, and processes transactions from all business activities involving the sale of goods or services in cash to meet organizational objectives.

2.2. Resource Event and Agent Models

The Resource Event and Agent (REA) model is a conceptual modeling tool made especially to go with the AIS database design's organizational framework. What entities should be included in the AIS database and

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how the relationship structure between the entities in the AIS database should be organized are decided in the REA model.
The REA model divides entity types into three groups: resources, events, and agents. Resources are things that are economically valuable to the organization. Resources include things like money, stock, machinery, supplies, warehouses, buildings, and land. Events are business operations about which management wants to learn more to plan or monitor operations.

Selling activities, for instance, will lower inventory while cash receipts activities, on the other hand, will raise cash amounts. Information on these activities should be collected and stored by AIS. Agents, on the other hand, are participants in activities and entities to which data is provided for planning, monitoring, and evaluation. Agents include people like suppliers, customers, and employees.

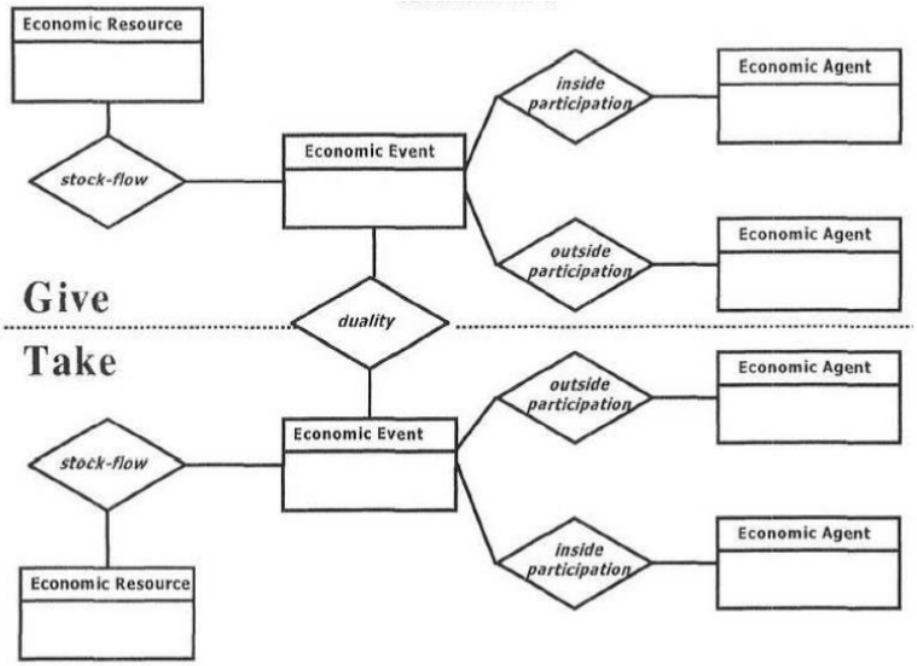

Figure 1. The REA Pattern

3. METHODOLOGY

The object of this research is the Eddy Motor Workshop, which is located at Jl. Delima Raya Blok CB1 No. 2, Bekasi Barat 17133. This workshop is engaged in motorcycle service services and has been established on March 7, 2009, under the auspices of Yamaha Motor.

Both primary and secondary data are used in this study. Direct observation of the research topic, namely the Eddy Motor Workshop, can yield primary data. Interviews with the pertinent sections are used to collect the primary data. The secondary information is derived from existing records and paperwork at the Eddy Motor Authorized Workshop.

4. RESULT AND DISCUSSION

4.1. REA Charting

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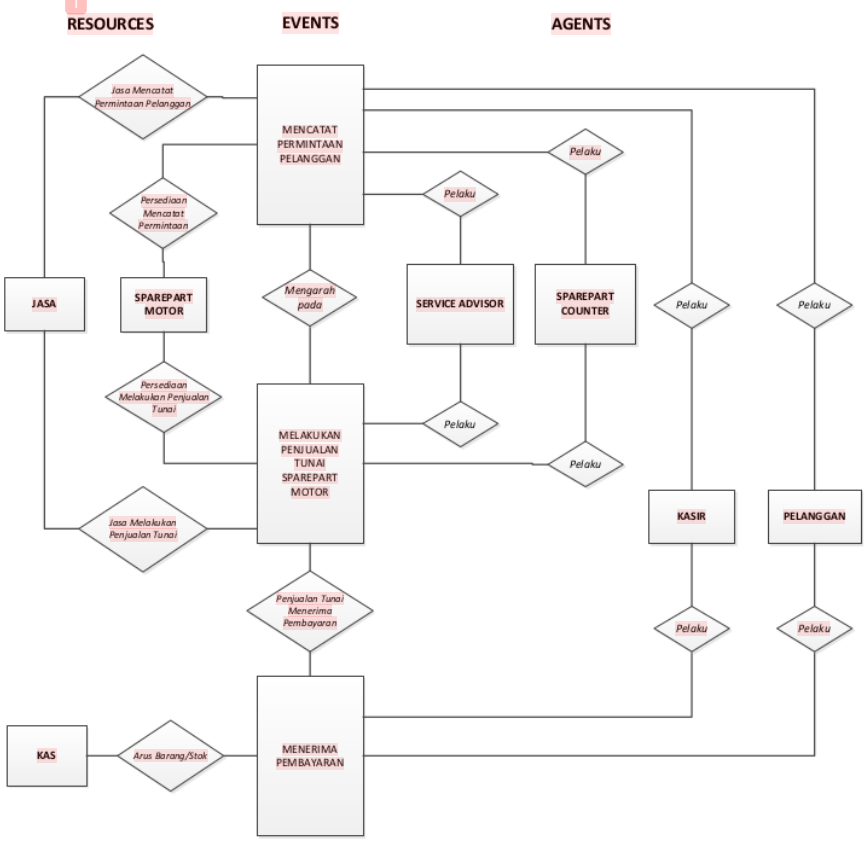

Figure 2. Making an REA Diagram of the Cash Sales Process

The following step is to position the entity resources on the left, entity events in the middle, and entity agents on the right after knowing the activities that take place, the resources used, and the actors involved. Service providers, motorcycle parts, and cash are located on the left side, which represents entity resources. Entity events, which are in the middle, keep track of customer requests, sell motorcycle spare parts for cash, and take payments. On the right, we find entity agents, service consultants, counters for spare parts, cashiers, and customers who are being taught.

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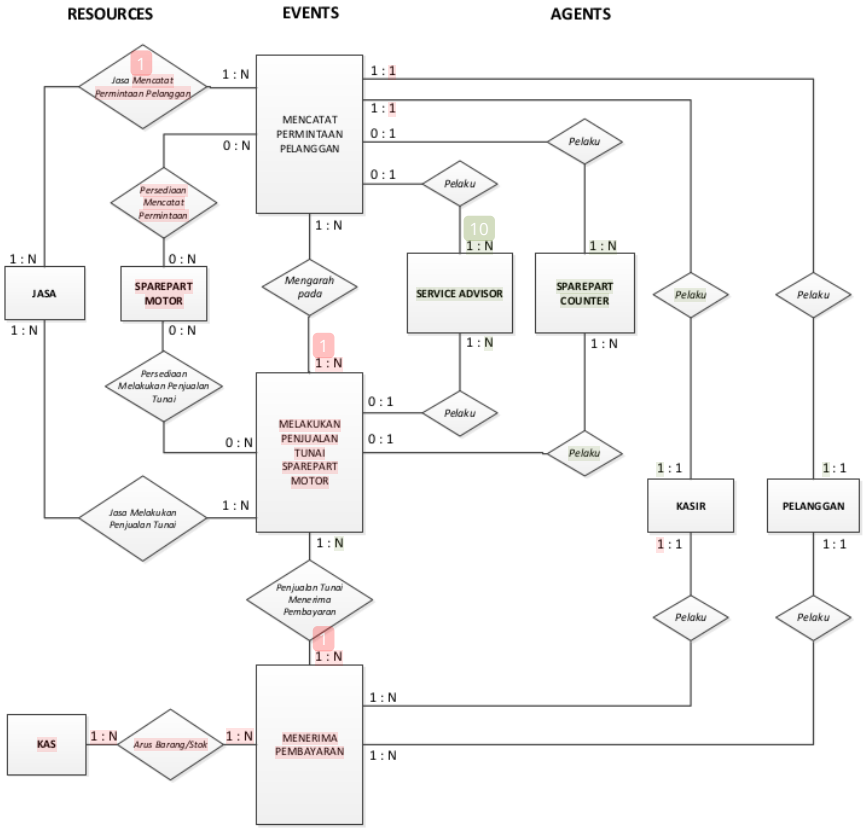

Figure 3. REA Chart with Cardinality

Cardinality is depicted in Figure 3. as number pairs in each entity. The minimum cardinality is the first number. This indicates whether a row in the table needs to be connected to at least one other row that is connected oppositely. If the table has a minimum cardinality of zero, a new row can be added without having to be linked to a specific row that is the relationship's opposite.

The minimum cardinality of 0 in Figure 3. indicates that information about adding motorcycle spare parts to the motorcycle spare parts table can be added without having to be connected to a customer transaction and is located close to the motorcycle spare part entity in the motorcycle spare part-customer relationship. A minimum cardinality of 1 on the other hand necessitates that every row in a table is related to at least one row in the other table in that relationship. Figure 3. illustrates how information about a new customer transaction can only be added if it is linked to a row in the motorcycle spare parts table due to the minimum cardinality that is close to the customer entity in the motorcycle spare part-customer relationship.

The maximum cardinality is the second number in each pair of cardinality numbers. This shows whether a table's rows can be connected to multiple rows in another table. Each row in a table can be connected to no more than one row in another table if the minimum cardinality is 1. Consider a customer-cash sale relationship where the customer entity has a minimum cardinality of 1. This implies that only one specific motorcycle spare part can be linked to each customer transaction. On the other hand, take note that N is the highest possible cardinality close to the cash sales entity (which represents many). This implies that more than one row of the customer table can be linked to each cash sales table.

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4.2. Database Creation

Ten entities and six N:M relationships make up the resulting REA diagram (services and recording customer requests; motorcycle spare parts and recording customer requests; services and making cash sales of motorcycle spare parts; motorcycle spare parts and making cash sales of motorcycle spare parts; recording customer requests and conducting cash sales of motorcycle spare parts). motorcycle spare parts cash sales, conduct cash sales of motorcycle spare parts and collect payment. There are sixteen tables total when the REA diagram is applied to the relational database, one for each entity and relationship N:M.

The following step specifies the primary key attribute for each table while listing the attributes in each table. Implementing 1:1 and 1:N relationships with foreign key attributes is the final step.

Table 1. Initial Database Tables and Attributes

Table Name	Attributes (Primary Key, foreign key, etc.)
1. Service	**Service Code,** Service Name, Tariff
2. Motorcycle Spare Parts	**Sparepart Number Code,** Spare Part Name, Spare Part Type, Description, Goods Quantity, Price
3. Cash	**Account Number,** Transaction Date, DK, Balance
4. Keeping Track of Customer Requests	**Request No,** Transaction Date, Service Advisor Employee Name, Counter Spare Part Employee Name, Cashier Employee Name, Requested Spare Part Name
5. Doing Motorcycle Spare Part Cash Sales	**SPK No,** Transaction Date, Counter Spare Part Employee Name, Cashier Employee Name, Spare Part Name requested
6. Receive Payment	**No Bon,** Transaction Date, Name of Cashier Employee, Name of Spare Part requested, Total Payment
7. Service Advisor	**Employee Number,** Employee Name, Address, No. phone
8. Sparepart Counter	**Employee Number,** Employee Name, Address, No. phone
9. Cashier	**Employee Number,** Employee Name, Address, No. phone
10. Customer	**Required Spare Part Name,** Customer Name
11. Customer Service Request Recording	**Service Code, No Request**
12. Services for Cash Sales	**Service Code, No SPK**
13. Customer Request for Motorcycle Spare Parts	**Spare Part Number Code, No Request**
14. Motorcycle Spare Parts Make Cash Sales	**Spare Part Number Code, SPK No**
15. Recording Customer Requests-Making Cash Sales	**No Request, No SPK**
16. Making Cash Sales-Receiving Payments	**No SPK, No Bon**

A relational database is created by creating a table based on the REA model's number of entities and the N:M relationship after the REA model has been created. After the sixteen tables have been created, the table's primary key, which serves as the table's representation, must have a unique value (example: motorcycle spare parts table, the primary key is the spare part number code).

The primary key of one entity is entered as a foreign key on another entity to implement a 1:1 and 1:N relationship after creating the attributes. A table that tracks customer requests and doubles as a counter table for spare parts is an illustration of how 1:N can be used. Employee No., a foreign key in the table of customer requests that are denoted by words in italics, serves as the cashier's primary key. Making the

primary key on one entity a foreign key on another entity is an example of implementing 1:1 that is nearly identical to the example of implementing 1:N.

The use of a cashier table's primary key as a foreign key in a table recording customer requests, which are indicated on the table by words written in italics, is an illustration of how 1:1 might be implemented.

5. CONCLUSION AND SUGGESTIONS

The following can be deduced from the outcomes of the design of the cash sales accounting information system at the Eddy Motor Authorized Workshop using the REA model:

1) At the Eddy Motor Authorized Workshop, the cash sales accounting information system is still manual and not yet computerized.
2) The REA model was successfully used to design the cash sales accounting information system at the Eddy Motor Authorized Workshop.

Because it provides accurate, timely, and relevant information, the information system can assist the owner in making decisions. It is necessary to design an application that can support the cash sales accounting information system at the Eddy Motor Workshop based on the database design that has been created in order to conduct additional research from the database.

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