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Development of Accounting Information System in Micro Business Based on the FAST Method
(Study on Ezyuwiz Micro Business)

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Abstract:- The Development of Accounting Information Systems (AIS) designed for Ezyuwiz microbusiness in this study needs to be done as a solution to some of the problems faced in the application of accounting information systems that are still less than optimal. This research is qualitative research using a descriptive study method based on the concept of system development framework for the application of system thinking (FAST) which consists of several phases, including scope definitions, problem analysis, needs analysis, and logical design. The data used in this study are primary data obtained through structured in-depth interviews and observation techniques. Based on the results of the study, several problems can be identified related to the implementation of the accounting system in Ezyuwiz micro business by using a framework of performance, information, economic, control, efficiency, services (PIECES). This study recommends the design of an integrated accounting information system development and improves services to meet the needs of micro business.

Keywords:- *Accounting Information System (AIS); Micro Business; Framework for the Application of System Thinking (FAST)*

I. INTRODUCTION

The use of information systems is one of the supporting factors to improve the performance and competitiveness of micro, small and medium enterprises [1]. Utilization of information technology affects the quality of financial reports[2]. The use of digital applications for accounting information technology will be able to improve business transformation, accuracy and efficiency of information exchange [3]. Therefore, information systems are one of the important factors to support the development of micro-businesses in Indonesia in facing the digital era of the industrial revolution 4.0.

According to the minister of transportation, Budi Karya Sumadi (2019), micro, small and medium enterprises still have not optimally exploited digitalization opportunities. Until the end of 2018, only 5% of micro, small and medium enterprises had gone digital and had to be upgraded to face this era. Gati Wibawaningsih as director general of small, medium and various industries (IKMA) said that micro, small and medium enterprises (MSME) are still lagging behind in the use of technology. Therefore, IKMA encourage MSME entrepreneurs to use digital platforms to increase their competitiveness because the use of digital technology is very potential in Indonesia.

Deputy for human resources development, theministry of cooperatives and small medium enterprise of the Republic of Indonesia, Ruly Nuryanto (2019) said that industry has now entered the era of revolution 4.0. In this era, speed and accuracy are the main keys to be able to win business competition. The industrial revolution 4.0 is marked by the extraordinary development of information technology. In this era, we often hear the terms artificial intelligent, robotics, e-commerce, big data, fintech, shared economics.

Chairman of the national economic and industry committee (KEIN), Soetrisno Bachir (2019) said that the industrial era 4.0 requires micro, small and medium enterprises players in various industrial sectors to understand and master digitization. Mastery of digitization is important so that businesses operate effectively and efficiently so that they develop progressively.

When viewed from the viewpoint of accountability, there are still many micro, small and medium enterprises players who do not yet have a good financial administration and management system. There are still many micro, small and medium enterprises business management that are still managed manually and traditionally, especially the recording of financial reports, even though this is one of the most fundamental factors for business and business management. This is also one of the reasons why there are still many micro, small and medium enterprises that have not yet obtained access to financing from banks. According to Bank Indonesia (2015), accountability is one of the banking considerations in the context of providing financing to micro, small and medium enterprises.

Based on data from the central statistics agency (2019), of the approximately 1.71 million micro, small and medium enterprises that are business entities, only less than 10 percent of micro, small and medium enterprises record financial reports. Without financial reports, it is difficult to assess performance, namely the progress report of a business or business. Financial reports are very important, namely as an indicator of an assessment of the progress of the company

as a whole for both internal and external interests of the company. In addition, financial reports are also used as an evaluation and planning tool related to policies that will be taken by business or business managers to improve their performance.

Furthermore, financial reports are one of the requirements for micro, small and medium enterprises to apply for credit at formal financial institutions. Of course, formal financial institutions will look at the financial conditions of micro, small and medium enterprises through their financial reports before giving credit, therefore the development of an accounting information system is something that needs to be done to deal with current micro, small and medium enterprise problems.

Ezyuwiz is one of the micro business who has used one of the digital mobile application products to record accounting transactions, but its implementation is still not optimal because there are several problems. Therefore, the authors make a study with the topic "Development of Accounting Information Systems in Micro Enterprises with the FAST Method (Study on Ezyuwiz Micro Business)". This study aims to develop an accounting information system in the Ezyuwiz micro business based on the framework for application of systems thinking (FAST) method.

II. LITERATURE REVIEW

A. *Accounting Information System*

An accounting information system is an organizational component that collects, classifies and processes data, analyzes, and communicates decision-making information with a financial orientation that is relevant to the company and parties outside the company[4].

The use of Information Technology has a positive influence on the quality of financial reports. This means that the better the use of information technology, the better the quality of the financial reports. The use of information technology, which includes computer technology and communication technology in integrated financial transaction management, will improve transaction processing and other data, accuracy in calculations, and more timely preparation of reports [2].

1. Accounting Information System Transaction Cycle

Susanto (2017) classifies the accounting transaction cycle into two types of companies, namely industrial companies and trading companies. In general, a trading company has three cycles, namely the revenue cycle, the expense cycle, and the financial accounting cycle [4]. The revenue cycle consists of activities that involve selling goods or services and collecting payments from sales. The revenue cycle is a business activity that occurs repeatedly and information on business processes related to providing goods and services to customers and receiving payment from sales. The expenditure cycle is an activity related to the purchase and payment of goods or services used by the company. The expenditure cycle is a business activity that occurs repeatedly and information on business processes is related to buying and paying for purchases of goods and services to suppliers. The financial accounting cycle is a general ledger system that summarizes an organization's financial activities. General ledger is a source of data for financial reporting and financial planning in management information systems. Transactions that occur in the cycle of receipts and expenses are then recorded in a journal which is a simplification of the financial aspect. Transactions that are recorded in a journal are then entered (Posting) into the general ledger.

2. Elements of Accounting Information Systems

The accounting information system consists of a set of elements to achieve its goals[5]. In general, information systems consist of six main elements, namely people, procedures, data, software, information technology infrastructure and internal controls. The people in the information system are the users of the system. Human resource competence has a significant influence on the application of the accounting information system and has implications for the quality of financial reports [6]. Information system procedures and instructions are the techniques and methods used to collect, store, retrieve and process data. The technique used can be automatic or manual. The data obtained can be sourced from internal or external. The data included in the accounting information system are all financial information related to the organization's business and practices. Software is used to store, retrieve, store, process, and analyze company financial data [7]. Information technology infrastructure is the equipment and hardware used to operate the accounting information system. Internal controls are security protection procedures for protecting important data.

B. *Framework For The Application Of System Thinking (FAST)*

The system development process is a number of activities, methods, best practices, products, and automated tools used by stakeholders to develop and improve information systems and software on an ongoing basis. Therefore, system development can be said to be the process of modifying part or all of the information system to get the best results for the company. FAST is a system development methodology used to reduce the risk of errors and to support the availability of complete documentation. If there is a change in the management team, what has been done before can be understood and the work continues. FAST is a standard process or methodology used to develop and maintain information systems. This method is also called the Agile Method, which is the integration of several approaches to analysis and system design that are applied to prioritize the problems to be resolved and the systems to be developed[8]. The FAST method phase for information system design consists of scope definition, problem analysis, requirements analysis and logical design.

1. Scope Definition

The scope definition phase is the first phase in the system development process. At this stage, information is collected which will be examined at the level of the feasibility and scope of the project using the framework of

Performance, Information, Economics, Control, Efficiency, Service (PIECES).

2. Problem Analysis

The goal of this problem analysis stage is to study and understand the problem area well enough to be able to analyze the problem, its opportunities, and its limitations. This stage will sharpen understanding of the project scope and provide a complete picture of the problem for system development. The problem analysis phase aims to study and understand the problem areas well enough to thoroughly analyze the problems, opportunities and their limitations.

3. Requirement Analysis

This requirement analysis stage aims to identify and state the business requirements that are the needs of system users for the system to be created or developed. The requirement analysis consists of functional requirements and non-functional requirements. Functional needs are the activities and services needed to support the business function processes that are carried out related to the accounting information system. Non-functional requirements are features, characteristics, and other limitations needed to support business processes from the application of accounting information systems.

4. Logical Design

This stage aims to document business requirements using system models that describe data structures, business processes, data flows, and user interfaces. system modeling can be done through process modeling and data modeling. Process modeling is a technique used to organize and document the processes of a system. One of the methods used to create a process model is a flowchart[9]. According to Romney & Steinbart (2014), Flowchart is a pictorial analytical technique used to briefly and clearly explain the procedures that occur within the company. Therefore, flowcharts can be used to describe the processes in the accounting information system transaction cycle. In general, a trading company consists of a revenue cycle, an expense cycle and a financial accounting cycle[4]. Data modeling is a technique for defining business requirements for a database or organizing and documenting system data. This modeling is often called database modeling. Simple data modeling is called an entity relationship diagram (ERD), which is a data model that uses several notations to describe the entities and relationships that will be described by the data[8].

C. *Theoritical Framework*

Accounting information system development can use the FAST method. Azmi et al (2018) used the FAST method to develop an information system for cooperatives[10]. Azmi's research used seven phases in the FAST method, namely preliminary investigation, problem analysis, requirement analysis, decision analysis, design, construction and testing, implementing. Adawiyah and Afrina (2019) use the FAST method in their research to develop a website-based sales information system that can support customer relationship management (CRM)[11]. The research conducted by Adawiyah and Afrina used eight phases in the FAST method, namely preliminary investigation, problem analysis, requirement analysis, logical design, decision analysis, physical design, construction and testing, installation and delivery.

Wijaya et al (2020) used the FAST method in their research to develop an inventory stock management information system design[12]. The research conducted by Wjaya et al produced an information system design, thus limiting the FAST method phase into five phases, namely scope definition, problem analysis, requirement analysis, logical design, physical design. This research is an information system development which aims to produce an accounting information system design. Therefore, this study builds a framework of thought using the FAST Development Method which is described through four dimensional approach, namely scope definition, problem analysis, requirement analysis, and logical design as shown in the following picture of the framework.

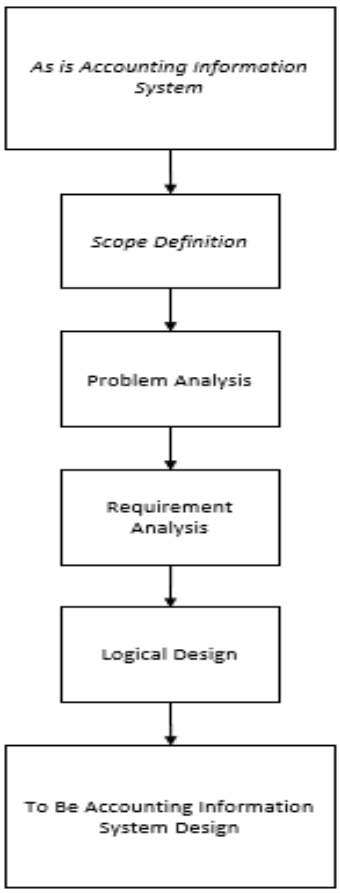

Fig 1:- Theoritical Framework

III. DESIGN AND RESEARCH METHOD

This type of research is qualitative, namely research based on naturalistic philosophy to examine the conditions of natural objects[13]. The research method used in this research is a descriptive method that aims to describe what is currently applicable. In it there is an attempt to describe, record, analyze and interpret the conditions that are currently happening. This descriptive method aims to obtain information about the existing situation and systematically

describe the facts or characteristics in an actual and accurate manner [14].

This research is the development of accounting information system at Ezyuwiz micro business, so the descriptive method of this research aims to describe the accounting information system currently applied actually based on the FAST method. In-depth interviews and observations were conducted to describe the concept of developing an accounting information system consisting of dimensions of scope definition, problem analysis, needs analysis and logical design.

IV. RESULTS AND DISCUSSION

A. *Results*

1. Scope Definition

At this stage, information is collected which will be examined at the level of the feasibility and scope of the information system development by using the framework of Performance, Information, Economics, Control, Efficiency, Service (PIECES). The performance of the accounting information system currently implemented by the Ezyuwiz micro business, to produce the desired output information, still takes a long time because it involves non-integrated applications to record entry or expense transactions. The quality of information generated from the accounting information system currently implemented by the Ezyuwiz micro business is inaccurate, untimely and incomplete. Based on the results of interviews with the owner of the Ezyuwiz micro business, the current accounting information system has not provided significant economic benefits because the information presented is limited, particularly regarding purchases and sales. This results in less than optimal in making the right decision to minimize costs in purchase transactions or optimize profit in sales transactions. The accounting information system implemented does not yet have control or control over user authorization so that users can access information that is not under their authority, for example, users who are in charge of recording purchase transactions should not be able to access transactions related to sales. The work carried out on the accounting information system that is implemented is still inefficient because the recording of detailed transactions of expenses and purchases is still carried out using a separate and not integrated application so that it requires repetitive work, for example the user records a journal manually in a Teman Bisnis application, then records transaction details in MicrosoftExcel application. The accounting information system currently implemented does not yet provide the services that users need, including managing vendor, customer, and product master data. In addition, there is still no cost and profit per product analysis report.

2. Problem Analysis

Based on the scope definition phase referring to the PIECES framework, a decision was made that the accounting information system currently applied by the Ezyuwiz microbusiness needs to be developed because several potential problems were identified. The identified problems are then analyzed for causes, effects and solutions which are expected to be handled by the information system that will be developed. The details of the problem analysis are described in the table as follows.

No	Problem Identification	Cause and Effect Analysis
1	Accounting information system performance takes a long time	Accounting information systems currently in use involve many applications that are not integrated with each other.
2	The information displayed is inaccurate, untimely and incomplete	The information proposed is potentially inaccurate because there is data that is entered manually, which carries a high risk of human error. The information displayed is not real time. In addition, there is a need for information that is not yet available, for example, cost and profit analysis reports, detailed sales reports and detailed purchase reports.
3	The accounting information system currently implemented has not provided optimal economic benefits in terms of cost efficiency	The information presented is limited, especially information relating to buying and selling transactions, so that the right decision making is less than optimal, especially related to cost efficiency in purchasing and optimization of profit on sales. For example, there is no cost and profit analysis report per product.
4	Controls on the accounting information system that are currently implemented are still less than optimal.	There is no security control system for user id authorization on the information system currently in use so that each user can access transactions that are not their access rights.
5	Less efficient process	There is no security control system for user id authorization on the information system currently in use so that each user can access transactions that are not their access rights.
6	The services of the currently implemented accounting information system. not complete.	There are services that are not yet available in the currently implemented accounting information system. For example, managing vendor, customer and product master data.

Table 1:- Problem Analysis

3. Requirement Analysis

Based on the results of interviews and observations, it was found that the functional requirements of the accounting information system implemented by Ezywiz include an integrated accounting information system, additional features and services. Meanwhile, the non-functional requirements that were found were controlling the accounting information system security.

4. Logical Design

Based on the results of observations and interviews, the process at Ezyuwiz involved with the accounting information system consists of the expenditure cycle, the entry cycle and the financial accounting cycle.

The current discharge cycle is depicted in the following figure.

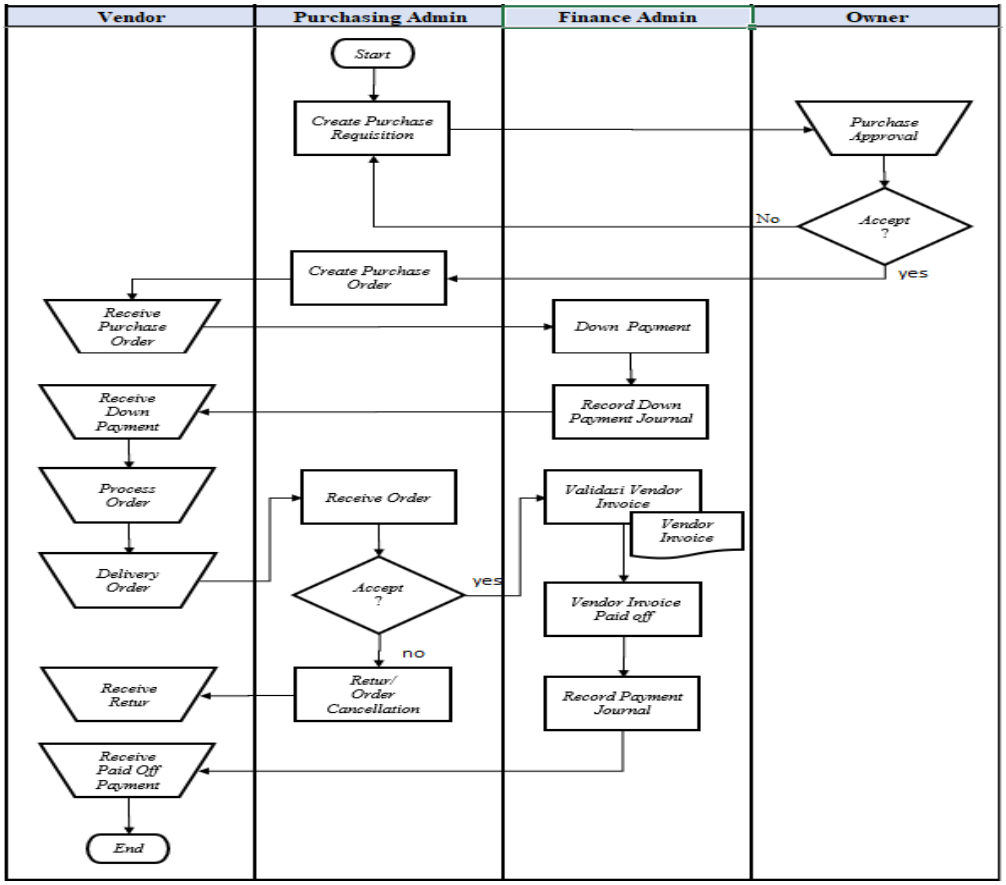

Fig 2:-*As is a flowchart of the Current Purchasing Process*

The current sales process is depicted in the following figure.

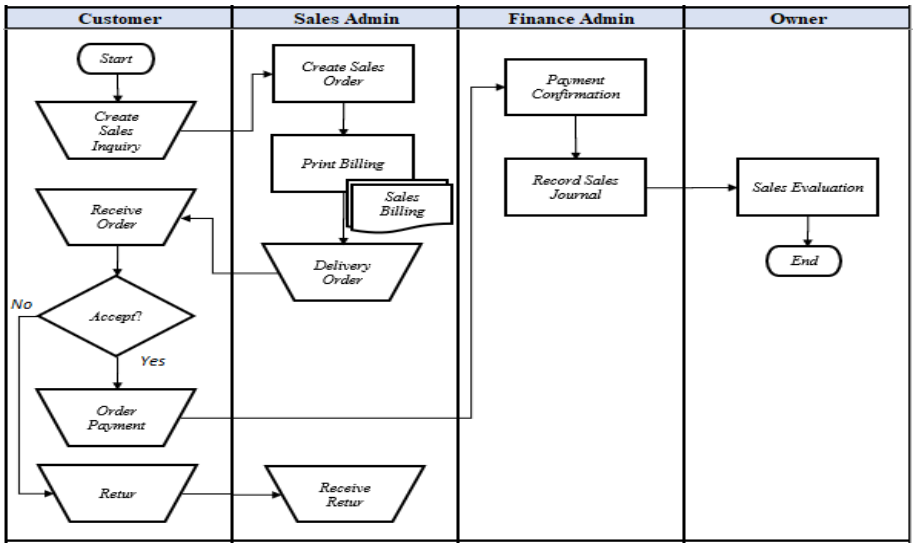

Fig 3:- As is a flowchart of the Current Sales Process

The current financial accounting manual journal process is depicted in the following figure.

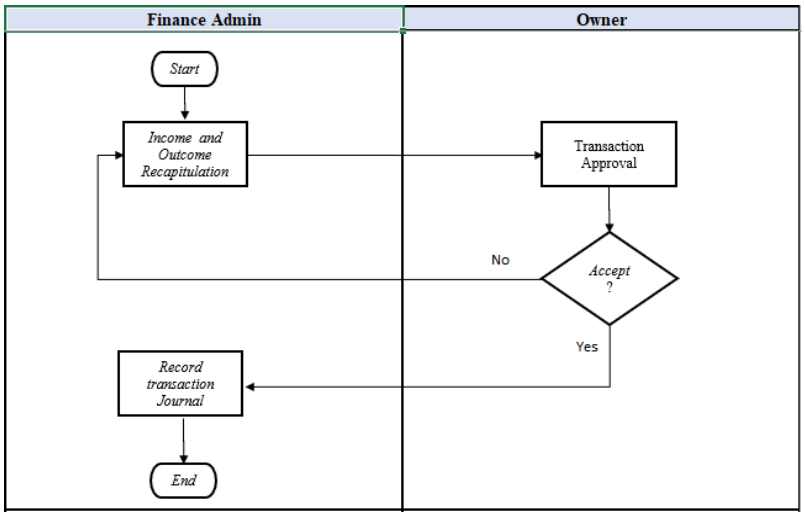

Fig 4:- *As is a flowchart of the Current Manual Journaling Process*

B. *Discussion*

1. Scope Definition

Based on the results of the analysis on the scope definition dimensions using a feasibility assessment framework based on performance, information, economy, control, efficiency and service (PIECES). The results identified several problems including: (1) Accounting information system performance takes a long time; (2) The information generated by the accounting information system is inaccurate, untimely, and incomplete; (3) Economic benefits are not optimal; (4) Inadequate controls; (5) Less efficient process; (6) Incomplete services.

2. Problem Analysis

The identified problems in the scope definition dimension are then further analyzed in the problem analysis dimension to determine the causes and consequences of the problem. Accounting information system performance is measured from the performance of the information system to produce output, namely accounting information. System performance takes a long time because to produce information output involves several applications that are not integrated with each other so that the work done by system users is less efficient. Based on the results of interviews and observations, currently business owners have not found the most appropriate application to implement an integrated accounting information system that can meet all the needs of Ezyuwiz micro businesses. The use of applications that are not integrated also has an impact on the resulting information being less accurate and not on time because system users do work that is done manually and less efficiently, thus increasing the risk of human error.

3. Requirement Analysis

Needs analysis analyzes functional and non-functional requirements that have not been met in the accounting information system currently applied. Based on observations and interviews with users, it is known that there are services that are not yet available in the accounting information system currently implemented, namely purchase transaction reports, sales transaction reports and cost and profit analysis reports. These services need to be equipped to meet user needs regarding the completeness of accounting information and optimize the economic benefits of implementing an accounting information system because reports of purchase transactions, sales transactions, cost and profit analysis are indispensable information for making the right decisions in order to minimize costs in purchasing transactions. or optimize profit in sales transactions. In addition, there are currently no adequate internal controls on the accounting information system in use. The owner of the Ezyuwiz micro business is fully controlled by monitoring every transaction that occurs. Even though until now there has been no fatal risk exposure such as loss of assets, fraud in recording financial transactions, and so on, internal controls are very important to be implemented in accounting information systems, for example applying user authorization when logging into the application so that users can access transactions accordingly. with access rights. In addition, internal controls also impose appropriate standard operating procedures and optimize transactions that are carried out automatically so as to minimize transactions that are manually inputted by users that have the potential to cause risk exposure.

4. Logical Design

Based on the results of the analysis of the scope definition dimensions, problem analysis, and requirements analysis, it is necessary to design a logical design of the accounting information system to be applied. Logical design can be described by process modeling and data modeling, which are as follows.

a) Process Modelling

Process modeling is a systems modeling technique that describes the relationship between the system and the business processes being carried out. Flowcharts can be used to explain the processes that occur in the application of information systems. Flowcharts focus on the user's

workflow with the system. The recommended process modeling is based on three accounting information system transaction cycles, namely the expenditure cycle, the revenue cycle and the financial accounting cycle.

The expenditure cycle focus on the purchase process which is depicted in the following figure.

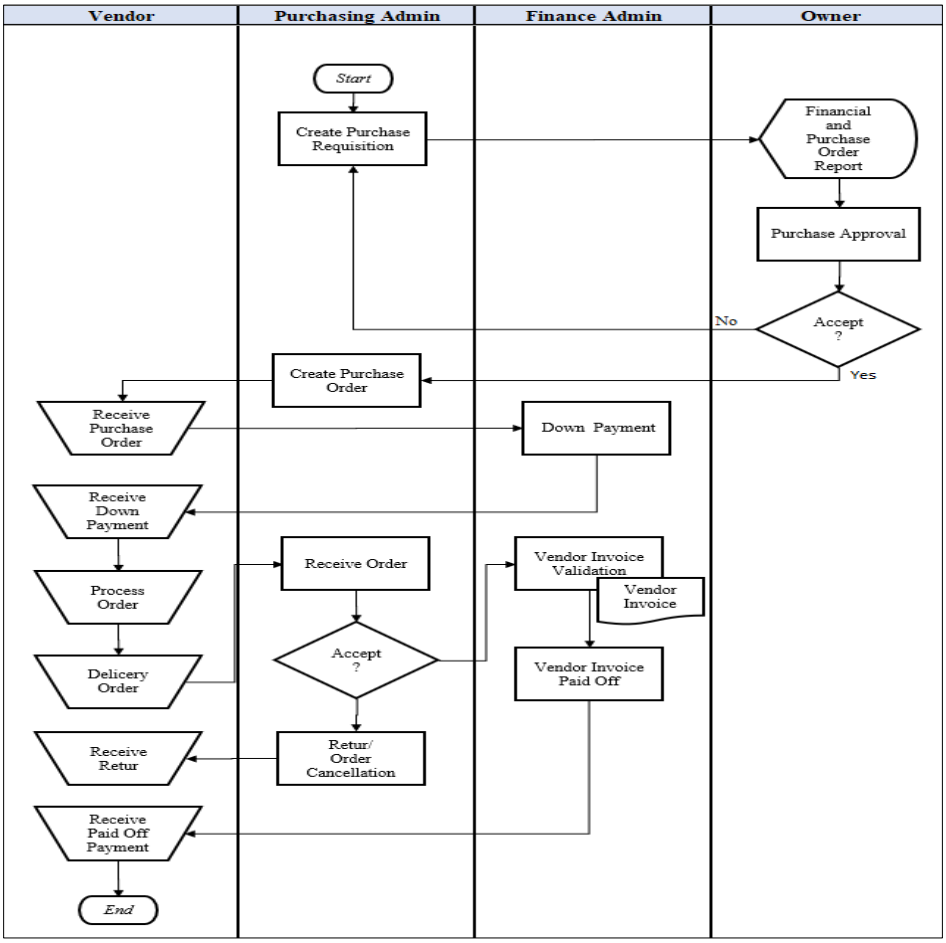

Fig 5:- To Be Purchase Process

The revenue cycle focus on the sales process are illustrated in the following figure.

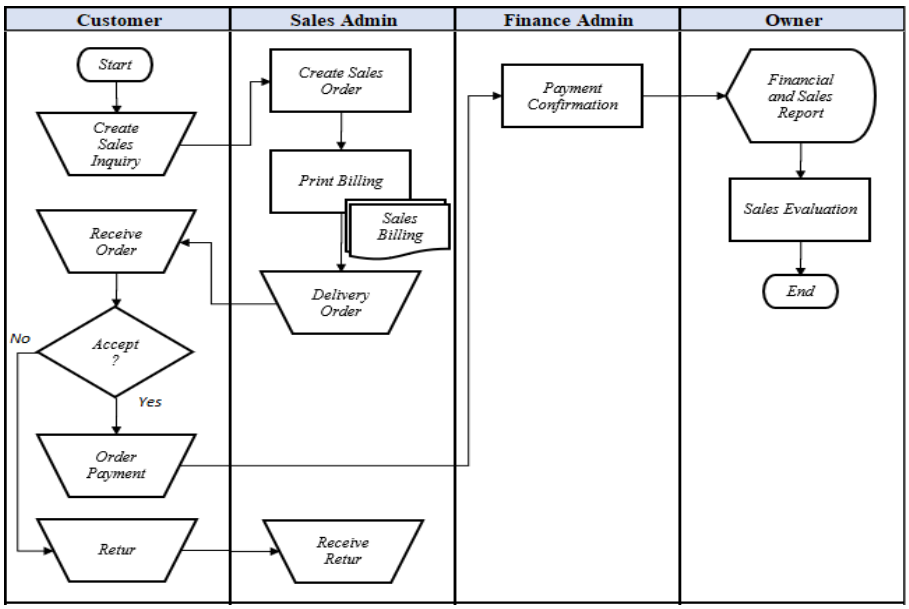

Fig 6:- To Be Sales Process

The financial accounting manual journal process are depicted in the following figure.

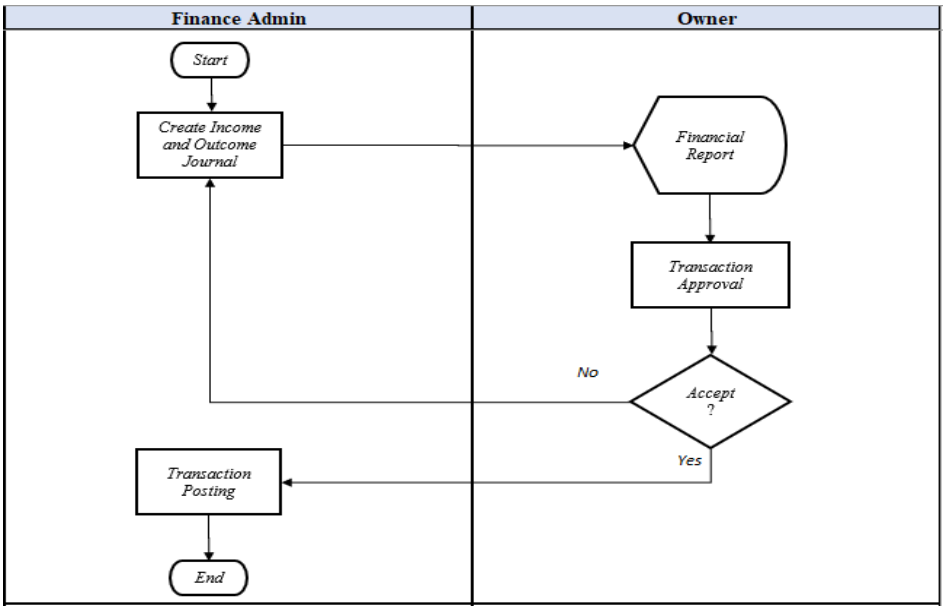

Fig 7:- To be flowchart of Manual Journaling Process

b) Data Modelling

Data modeling used in this research is entity relationship diagram (ERD). Making ERD will be implemented as a database of the accounting information system that Ezyuwiz will implement. Data is stored by entity. Then each entity is identified more specifically in attributes. The proposed entities consist of purchase orders, vendor invoices, sales orders, goods movements, accounting documents, material master data, vendor master data, customer master data.

The relationship between entities can simply be seen in the Entity Relationship Diagram Model image as follows.

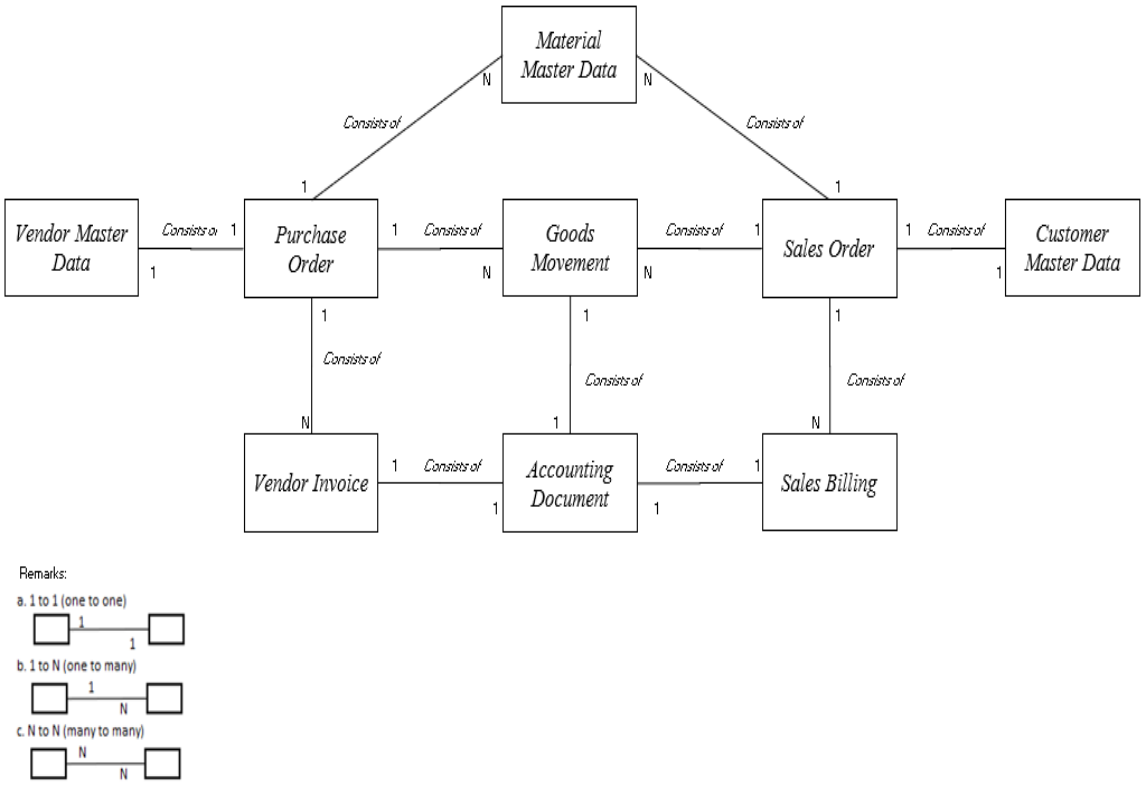

Fig 8:- Entity Relationship Diagram Model

V. CONCLUSION AND SUGESTION

A. *Conslusion*

The development of accounting information systems at Ezyuwiz micro-businesses uses the framework for the application of systems thinking (FAST) method which is described into the dimensions of scope definition, problem analysis, needs analysis, and logical design, which is as follows.

1. Scope Definition

The definition of the feasibility assessment of the accounting information system framework is a performance, information, economic, control, efficiency, and economic framework. The results identified several problems, including sub-optimal performance, inefficient business processes, inaccurate and inaccurate information, inadequate economic benefits, inadequate control, and services.

2. Problem Analysis

The problems identified in the scope definition are generally caused by the application of a non-integrated accounting information system. Besides, the applications currently used also do not provide complete services according to user needs and there is no adequate control.

3. Requirement Analysis

The requirement analysis describes the needs of users of the accounting information system, namely the need for cost and profit analysis reports, management of product master data, suppliers and customers, and the application of adequate security controls.

4. Logical Design

The process modeling design shows that after developing an accounting information system, the process that was originally carried out repeatedly in separate and non-integrated applications, later the process will only be carried out in one integrated accounting information system application so that accounting transactions are carried out more efficiently and the resulting information becomes real. time. The data modeling design also shows that the entities from the database that need to be made on the proposed integrated accounting information system to store complete information according to user needs, including purchase orders, vendor invoices, sales orders, sales billing, goods movement, accounting documents, material master data, vendor master data, customer master data.

B. *Sugestion*

Ezyuwiz micro business should develop an accounting information system by implementing an integrated software application so that purchase transactions, sales transactions and accounting transactions can be carried out more efficiently and in real time in one application. In addition, the application being developed needs to be equipped with a cost and profit analysis report, management of master product data, customers and suppliers, as well as adequate user security controls.

This research is limited to the logical design phase because it aims to produce an accounting information system design. The next research is suggested to be able to continue the system development phase to realize the proposed accounting information system design.

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