CHAPTER II

LITERATURE REVIEW

2.1 Previous Research

This research is developed with various references coming from previous studies on similar topics. This study has some similarities and differences with several previous studies which are being the main references in this study.

1. Kocsis (2019)

This study aimed to examine research on accounting information systems to understand research on accounting information system design. The subject used in this research was the publisher of the accounting information system journal. The research method was qualitative with comparative analysis.

This research was conducted by Kocsis (2019) and showing a result that information systems have an impact on users, organizations, and technology in both research and practice in the field. The similarity in both studies is using a qualitative perspective to see the implementation of accounting information systems. The difference of both studies is previous study conducted research with theoretical aspects regarding the practice of using information systems for practitioners and academics, while current study focuses on practical aspects regarding the application of accounting information systems to research subjects.

2. Darwis, Apriyanti, and Susanto (2019)

The purpose of this research was to design the flow of accounting information systems for the expenditure cycle of PT. Sari Segar Husada. The

subject used was PT Segar Sari Husada. The analytical method used was the Extreme Programming (XP) method, and the system design method in this study used the Unified Modeling Language (UML). The result of research conducted by Darwis, Apriyanti, & Susanto (2019) was the operational expenditure data processing is carried out by inputting BOP data, cash data, and expenditure data in a software that has been designed by researchers.

Similarity:

The type of subject under both studies is a *for-profit* business company.

Differences:

a. Previous research conducted research on the expenditure cycle, whereas the current research focuses on overall business cycles based on profit and loss statement.

b. Previous research subject examined was company in manufacturing sector, whereas current research focuses on companies in trading sector.

c. Previous research used the XP model approach in analyzing and designing new accounting information system, while current research implements waterfall method for analyzing and designing new accounting information system.

3. Dwijanatri and Nugroho (2018)

The purpose of this research was to know and design the flow of accounting information systems for the sales and inventory cycle at Central Steak and Coffee. The subject used in this study was Central Steak and Coffee. The analysis methods used in this research were PIECES analysis, system analysis, and feasibility

analysis of the TELOS system. The results of research conducted by Dwijanatri & Nugroho (2018) showed that the sales and inventory accounting information system at Central Steak and Coffee still used manual systems and a lot of accounting information systems were not used in orderly manner. Based on the PIECES analysis it was concluded that the system being run still had many shortcomings. The system development stages include: database design, input design, and output design.

Similarities:

a. The type of subject under both studies is a *for-profit* business company.

b. The approach model used also has similarity, namely PIECES analysis.

Differences:

a. Previous research designed a new accounting information system by creating special software using SQL Server and Microsoft Vsual Studio that the research subject could use, while the current research creates a new accounting information system by creating software using Microsoft Access 2013.

b. Previous research subject was in the manufacturing sector in food and beverage area, while current research uses companies in trading sector.

d. The accounting cycle studied in previous studies examined the sales and inventory cycles, whereas the current research focuses on overall business cycles based on profit and loss statement.

c. Previous research used the TELOS feasibility model approach which is not used in current research.

4. Putra (2018)

This research was conducted with the aim of knowing the flow of accounting information systems and internal control over CV. Celine Production. The subject used was CV. Celine Production. The analytical method used was comparative qualitative with conceptualization steps, namely by determining the variables and indicators which become the limitations of the variable problems in the study. The results of research conducted by Putra (2018) showed that the accounting information system for raw material supplies had not been maximally implemented and the use of documents had not been regularly used. In addition, the internal control system for fabric raw materials, organizational structure, operational practices, and utilization of human resources was not in accordance with existing theories.

Similarities:

a. The similarity of the type of subject under both studies is a *for-profit* business company.

b. Both studies conduct an analysis of the accounting information system run by the research subject.

Differences:

a. Previous research conducted research on the inventory cycle, whereas the current research focuses on overall business cycles based on profit and loss statement.

b. Previous research only carried out a comparative analysis of the subject's accounting information system, while current research creates the design of new accounting information systems that can be applied to the subject.

c. Previous research subjects examined company in manufacturing sector, whereas current research focuses on company in trading sector.

d. Previous researcher did not include the use of any model approach in conducting the analysis, whereas the current research uses waterfall method for analyzing and designing new accounting information system.

5. Arum and Nugroho (2017)

The purpose of this research was to know and design the flow of web-based accounting information system for Batik Pramanca's cash receipt cycle. The subject used was Batik Pramanca. The analytical method used was the Rapid Application Development (RAD) development method which consists of three phases, namely requirements planning, RAD design workshop, and implementation. The results of research conducted by Arum & Nugroho (2017) showed that the accounting information system used by the subject had not been supported by technology and was still manual with unclear internal controls. A clearer and tidier accounting information system for each function of the sales cycle was given, as well as the creation of a special website that the subject could use as in carrying out accounting activities.

Similarities:

a. The similarity of the type of subject under both studies is a *for-profit* business company.

b. Both studies also analyze and design a new accounting information system that can be used by the research subject.

Differences:

a. Previous research subjects were in the manufacturing sector, while current research uses companies in the trading sector.

b. Previous research used the RAD model approach in designing new accounting information system, while current research uses waterfall method for analyzing and designing a new accounting information system.

c. Previous research developed a new accounting information system based on website appliaction, while current research develops new accounting information system based on desktop based software.

6. Firdaus and Widyasastrena (2017)

The purpose of this research was to evaluate and design the flow of accounting information systems using a web-based technopreneur approach to MSMEs and cooperatives in West Java. The subjects used were MSMEs and trade sector cooperatives in West Java. The analytical method used was the Rapid Application Development (RAD) development method which consists of three phases, namely requirements planning, RAD design workshop, and implementation. The result of research conducted by Firdaus & Widyasastrena (2017) was a system designed by making flowcharts and data flow diagrams first, and then an ERP software was made that can handle the subject's financial statements.

Similarities:

a. The similarity of the type of subject under both studies is a *for-profit* business company.

b. Both studies also analyze and design a new accounting information system that can be used by the research subject.

Differences:

a. Previous research developed an enterprise resource planning software which was designed and could be used by the subject.

b. Previous research subjects examined MSMEs and cooperatives in the trading sector, whereas current research uses only one trading sector company.

d. Previous research used the RAD model approach in designing new accounting information system, while current research uses waterfall method for analyzing and designing a new accounting information system.

7. Al-Hawari (2017)

This research was conducted with the aim of understanding and designing the flow of information systems for students at the University of Jordan, Germany. The subject used was University of Jordan. The analytical method applied was descriptive qualitative research with a web-based system creation method using Java EE.

The result of research conducted by Al-Hawari (2017) was by improving the features and flow of the ERP process at the University of Jordan, the subject could easily determine all the costs, sponsorships and scholarships needed. In addition, the system also connect students according to their respective

scholarships. As a result, the system is able to automatically and accurately calculate tuition fees for students and sponsors while generating registration invoices.

Similarity:

Both studies analyze and design a new accounting information system that can be run by the subject.

There are also differences between current research and previous research, namely:

a. Previous research conducted on non-profit organizations, whereas the current research focuses on *for-profit* business organizations. This difference greatly affects the content of the research because the characteristics of the two organizations are quite different.

b. Previous studies did not include the use of any model approach in conducting analysis but using Java EE application for developing the new accounting information system, while the current research uses waterfall method for analyzing and designing a new accounting information system by utilizing Microsoft Access 2013 for developing the new system.

8. Nuryanti and Suprantiningrum (2016)

This research was conducted with the aim of knowing and designing the flow of accounting information systems on the sales cycle and cash receipts of UD. Praktis. The subject used was UD Praktis. The analytical method used was qualitative analysis which as carried out continuously interactively at each stage of

research by applying the components of data reduction, data presentation, verification or data conclusion.

The results of research conducted by Nuryanti & Suprantiningrum (2016) showed that the accounting information system had not been supported by technology and was still done manually with unclear internal controls. Recommendations were given in the form of a clearer and tidier accounting information system for each function of the sales cycle and cash receipts by using Microsoft Excel in carrying out accounting activities.

Similarities:

a. The similarity of the type of subject under both studies is a *for-profit* business company.

b. Both studies perform analysis and design process of accounting information system used by the subject.

Differences:

a. Previous research conducted a new accounting system design by proposing the use of Microsoft Excel which the subject could use as a research proposal, while current research brings a new accounting information system for the subject by developing a software namely Larudi.

b. Previous research subject was in the manufacturing sector, while current research uses company in the trading sector.

c. Previous studies did not explain what model approach was used, while current research uses waterfall method for analyzing and designing a new accounting information system.

9. Widyasari, Yaningwati, and Husaini (2015)

The purpose of this research was to understand the flow of the accounting information system on the payroll cycle and wages of the production division of CV. Sejahtera. The subject used was CV Sejahtera. The data analysis technique used in this study was a qualitative analysis by collecting related accounting functions, the documents used, and the accounting records applied.

The results of research conducted by (Widyasari, Yaningwati, & Husaini, 2015) showed that the current accounting system was good and running well, but there are several things that should be improved based on weaknesses and potential fraud which were: adding documents for any changes to salaries and wages, using procedures for recording working time, providing clear job description details, and separating cashier and accounting functions.

Similarity:

a. The similarity of the type of subject under both studies is a *for-profit* business company.

Differences:

a. Previous research conducted descriptive analysis only without creating a new accounting information system in application form.

b. Previous research subject was in the manufacturing sector, while current research uses company in trading sector.

c. The accounting cycle studied in previous research was payroll and wages, whereas the current research focuses on overall business cycles based on profit and loss statement.

10. Strumickas and Valanciene (2010)

The purpose of this study was to examine theoretical and practical assumptions for the development of a management accounting system that is adapted to the organizational environment. The subjects used were several companies in Lithuania that were determined based on the criteria of business sector, business age, organization size, and performance results. The research method used in this research was descriptive qualitative analysis method with a case study approach. The results of research conducted by Strumickas & Valanciene (2010) showed that the management accounting system is strongly influenced by the internal, external, and organizational goals.

Similarity:

a. Similairity between current research and previous research which lies in the same subject under both studies which are *for-profit* business company.

Differences:

a. Previous research conducted research with theoretical aspects regarding the practice of using information systems for management accountants, while researchers are currently conducting research on practical aspects regarding the application of accounting information systems to research subjects.

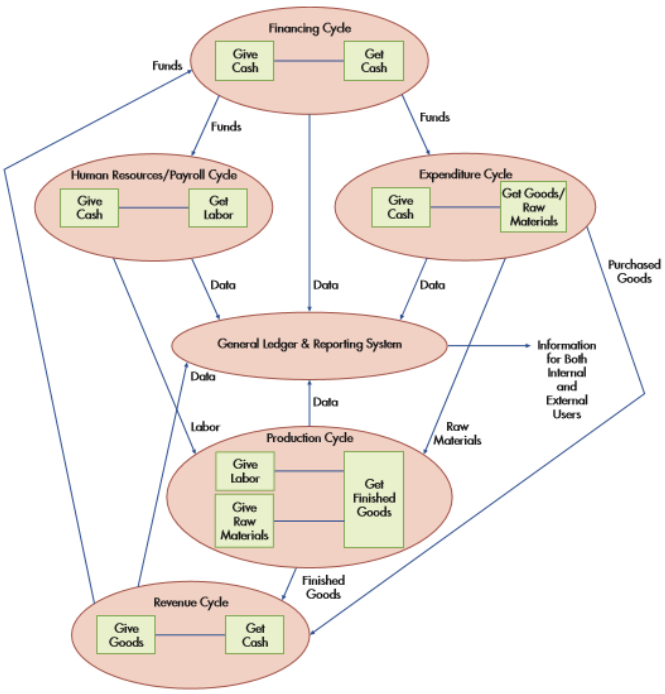
b. Previous research subjects examined various companies in Lithuania, while the current researcher focuses on one company in the trading sector in Surabaya, East Java, Indonesia.

2.2 <u>Theoretical Basis</u>

The several theoretical foundations and definitions of the factors in this study are as follows:

2.2.1 Accounting Information System

An accounting information system is a procedure for collecting, entering, processing, and storing data; and a set of organized ways to store, manage, control and report information in certain ways and procedures (Romney & Steinbart, 2014). Krismiaji (2015) also stated an accounting information system is a system that processes data and transactions in order to produce useful information for planning, controlling, and operating a business.



Source: Romney & Steinbart, 2014

Figure 2.1
Accounting Information System Diagram

2.2.1.1 Benefits of Accounting Information Systems

According to Romney & Steinbart (2014), an accounting information system that runs well will provide benefits for businesses which are:

1. Improve quality and reduce product costs

   An accounting information system that runs well can provide useful information for making decisions about business transactions and products.

2. Increase efficiency

   The application of an accounting information system will make accounting activities neater and structured so as to maximize operational efficiency.

3. Knowledge sharing

   Each division and individual in the organization can share and receive the information they need more quickly and neatly.

4. Improve the efficiency and effectiveness of its supply chain

   Company's supply chain will be more concise because the accounting information system provides access to users in obtaining the information needed.

5. Improve internal control structure

   A well-structured and regular system will minimize any fraud or errors that can occur in business activities.

6. Improve decision making abilities

   The information generated by the accounting information system will be neat, structured, and complete. With such information, organizational management can make decisions more wisely and planned.

2.2.1.2 Accounting Information System Components

There are six components in the application of an accounting information system (Romney & Steinbart, 2014), namely:

1. *People*: people who use or operate the system.
2. *Procedures*: procedures or flow in collecting, processing, and storing data.
3. *Data*: a collection of facts about business transactions and organizations.
4. *Infrastructure*: the physical equipment needed to run a system.
5. *Software*: applications used in data processing.
6. *Internal controls and security*: control procedures to protect the accounting information system.

2.2.1.3 Factors Affecting the Use of Accounting Information Systems

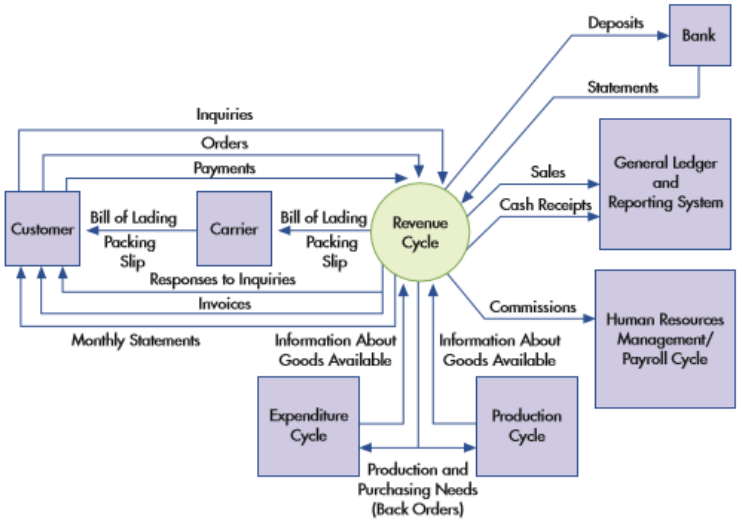
Three factors underlie an organization using an accounting information system (Romney & Steinbart, 2014) are:

1. *Organization culture*: culture or culture that is applied in the organization.
2. *Business strategy*: defined business strategy and reference in organizational activities.
3. *Information technology*: availability of infrastructure and manpower in the field of technology and information.

2.2.2 Revenue Cycle

The revenue or sales cycle is defined as a series of routine business activities and information processing related to the provision of goods and services to customers, as well as the collection of cash from customer payments for these sales (Romney & Steinbart, 2014). According to Suwardjono (2014), sales are

transactions of exchanging products, whether goods or services of an organization, with cash or claims on cash. Sales can be said to occur technically if the product and risk have passed into the hands of the buyer or customer, and the organization that sells the product receives cash.



Source: Romney & Steinbart, 2014

Figure 2.2
Revenue Cycle Diagram

2.2.2.1 Activities in Revenue Cycle

According to Romney & Steinbart (2014), there are four main basic activities in the revenue or sales cycle which are:

1. Sales order entry / orders from customers:
   a. Customers order products
   b. Receivables approval for credit transactions
   c. Checking product inventory
   d. Processing the order
2. Shipping / shipping products

a. Packaging product to be shipped

b. Delivering ordered product

3. Billing / billing to customers

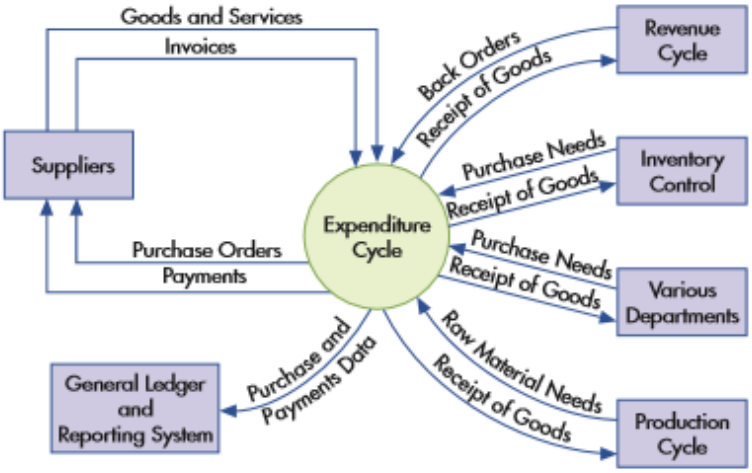
a. Issuance of invoices or invoices

b. Accounts receivable control

4. Cash collection / cash receipts

2.2.3 Expenditure Cycle

The expenditure cycle is a recurring set of business activities and related information processing operations associated with the purchase of and payment for goods and services (Romney & Steinbart , 2014). In the expenditure cycle, the primary external exchange of information is with suppliers (vendors). Once the goods and materials arrive, notification of their receipt flows back to those sources from the expenditure cycle. Expense data also flow from the expenditure cycle to the reporting function for inclusion in financial statements and various management reports.



Source: Romney & Steinbart, 2014

Figure 2.3
Expenditure Cycle Diagram

2.2.3.1 Activities in Expenditure Cycle

Organization performs the four basic expenditure cycle activities:

1. Ordering materials, supplies, and services
2. Receiving materials, supplies, and services
3. Approving supplier invoices
4. Cash disbursements

2.2.4 System Development

System development according to Bodnar & Hopwood (2013) is a process carried out to modify or replace part or even all parts of a system. This process is carried out based on the fact that the current system is considered to be less than optimal or may be outdated, so a system update that is better suited to the needs of the user organization is needed. In carrying out system development, there are four

stages that must be carried out, which are system planning, system analysis, system design, and system implementation (Bentley & Whitten, 2007).

2.2.4.1 System Planning

As a beginning, researcher must make a plan research on systems related to the scope, schedule, and objectives of research development. System users play an important role in the planning stage of this system.

2.2.4.2 System Analysis

The definition of system analysis according to Yulianto, et al. (2009) is an activity to review a system that has been implemented, then assesses the components in the system that are already running well and which can still be developed, after which documentation is carried out to design a new system. System analysis is a study of a system that has been implemented, then a new system is designed to update an existing system.

Thus, it can be concluded that system analysis is the action of researchers in seeing and assessing the performance of a system that has been implemented, finding constraints and problems that occur, and then designing a new system design in order to replace the existing system for the better.

2.2.4.3 System Design

After the system analysis is made, the researcher will present several options as solutions to the weaknesses or weaknesses of the system being studied. After that the researcher will design a new system by selecting the best option that can be applied by system users.

2.2.4.4 System Implementation

The final stage that must be done is to implement. After the system has been designed, the user can implement the new system proposed by the researcher. This new system still needs to be evaluated for its performance whether it is running well and according to user expectations.

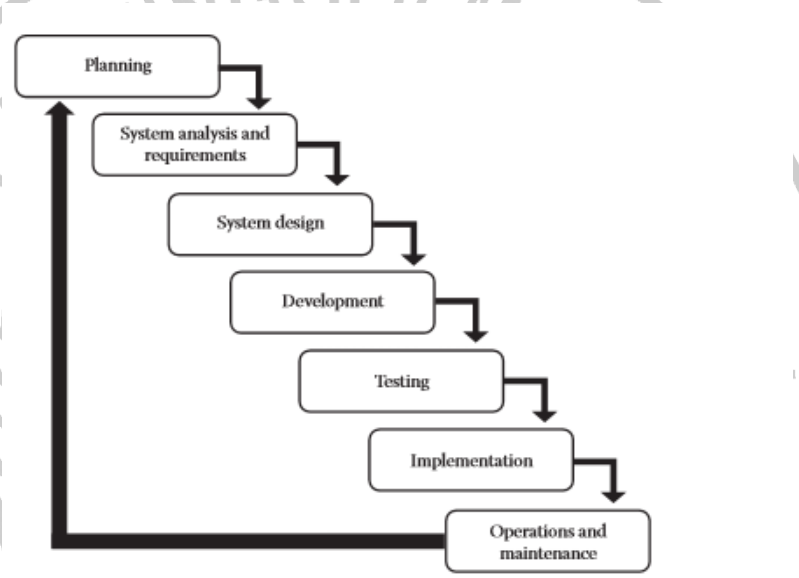
2.2.5 System Development Life Cycle

A project is a business that has been designed, starting with the initial planning phase and ending with producing the desired product. System analysts are tasked with solving business problems. In relation to problem solving activities, it needs to be organized and focused on producing goals. An analyst achieves this result by organizing a project of 30, so that it will eventually result in an information system that is developed through development phases. According to Satzinger, Jackson, & Burd (2011), the systems development life cycle (SDLC) is the entire system-wide process that starts at the building, deploying, using, and updating stages of information systems. The system development life cycle (SDLC) is one of the methodologies used to develop information systems.

System development life cycle is one of the most popular methods of developing information systems when information systems were first developed. SDLC is an approach that is carried out in stages in terms of analyzing and building a system design using cycles specific to user activities (Kendall & Kendall, 2006). Based on the definition described above, it can be explained that SDLC is a method used by analysts and programmers in building information systems through several phases starting from planning to implementation. SDLC is one of the key basic concepts in information systems.

2.2.6 SDLC Waterfall Model

One of the earliest and most widely used SDLC models is the waterfall model. The SDLC model developed by Satzinger, Jackson, & Burd (2011) describes a multi-stage sequential approach which is usually referred to as the waterfall model. The waterfall model provides a sequential software life flow approach starting from the analysis, design, coding, testing and support stages.



Source: Otero, 2019

Figure 2.4
Waterfall System Development Diagram

In this SDLC model, the first thing to do is define the formulation of the problem so that a solution to the formulation will be carried out (plan). Furthermore, the project team analyzes, defines and thoroughly understands the problem and its needs, then looks for a solution (analysis). After the problem is understood, the solution is reviewed in depth (design). This system is then built, developed and installed (implementation). Based on the picture above, several stages in the SDLC waterfall model are described as follows:

1. Planning Phase

The initial activities of the SDLC are aimed at identifying the new system scope and plan of a project. The activities listed in this plan are:

a. Defining the problem

The most important activity of project planning is to define precisely the business problem and scope of required solutions

b. Generating project schedule

A project schedule produces a detailed list of tasks, activities, and necessities that are required.

c. Confirming project eligibility

Feasibility analysis investigates the feasibility of the organization, technical implementers, and resources.

d. Projecting launch

The overall project plan that has been reviewed begins to be implemented.

2. Analysis Phase

System requirements analysis is carried out to identify and evaluate problems, obstacles that occur and the expected needs so that improvements can be proposed. According to Rosa and Saladin (2011), this stage is carried out in system analysis, including:

a. Problem Identification Analysis

Problem identification is the first step in system analysis. In this stage a problem is defined to be solved.

b. Needs Analysis

Analyze the needs of users of software systems (users) and develop user requirements.

c. System Feasibility Analysis

A feasibility study is used to determine the likelihood of success of a proposed solution. This stage is useful for ensuring that the proposed solution can actually be achieved.

3. Design Phase

Software design is a multi-step process that focuses on the design of a software program including data structures, software architecture, interface representations, and coding procedures. This stage translates software requirements from the requirements analysis stage todesign representation so that it can be implemented into a program at a later stage (Sukamto & Shalahudin, 2015). At the design stage, designs include:

a. Process Design

The process design is in the form of a data flow diagram or data flow diagram (DFD). The design process used is a logic model in which the logical model further explains to the user how the information system functions will logically work.

b. Database Design

The design referred to in this stage is to determine and show the relationship between entities and their relationships (entity relationship diagram).

c. Table Design

The design is in the form of tables used in making the system. Tables are designed to form an identity that represents database design by connecting between tables to form a connection between these tables.

d. Interface Design

Application design is a stage that must be done before starting to create an application. The design concept in designing the application page is a display on the application page that will be used by the user.

4. Implementation Phase

All forms of input are carried out from the system design, the system that has been developed into a program called a unit, which is related to the next stage. From each of these units, it is developed and tested to determine the functions associated with that unit.

2.2.7 Desktop Based Application

According to Konixbam (2009), a desktop-based application is an application that can run independently or independently without using a browser or internet connection on an autonomous computer with a specific operating system or platform. Desktop applications are focused on applications that are more independent. This aims to make it easier for users to modify application settings so that effectiveness, efficiency, time, funds, and energy can be emphasized as much as possible. Broadly speaking, there are two major types of programming in desktop-based applications, namely conventional programming and visual programming.

a. Conventional programming is a method of designing an application, programming is required to be able to apply line by line of program code in order to produce a form of application that is created and will take a long time.

b. Visual programming is a programming method in which a programmer makes connections between objects by drawing, pointing, and clicking on diagrams and icons by interacting with path diagrams.

2.2.8 PIECES Analysis Model

According to Ragil (2010) PIECES analysis is a method of analyzing the performance of a system based on several aspects, namely: Performance, Information (information generated), Economy (cost of use), Control (control and security), Efficiency, and Service. This analysis is important to do to find problems in a system, or the symptoms of problems that will arise in a system.

2.2.8.1 Aspects in the PIECES Analysis Model

1. Performance: assess how reliable a system is to produce the desired output and review the factors that can be improved in the system.
2. Information: assess whether a system can produce output in the form of relevant information as needed.
3. Economic: assess whether the costs incurred to perform a system in accordance with the output produced.
4. Control: assessing the system's ability to detect errors, as well as assessing the procedure being carried out whether it can still be improved.
5. Efficiency: assess the operational efficiency of a system.

6. Service: assessing the existing services on the system already provide comfort and convenience for users.

2.2.9 Classification of Micro, Small and Medium Enterprises

The classification of MSMEs in Indonesia is regulated in Article 6 which regulates the criteria for businesses at each micro, small and medium level, which are as follows:

a. A micro business is a business unit that has net assets of Rp. 50 million (excluding land and buildings for business premises) and annual sales of Rp. 300 million.

b. A small business is a business unit with an asset value of Rp. 50 million to Rp. 500 million (excluding land and buildings for business premises) and annual sales of Rp. 300 million to Rp. 2.5 billion.

c. Medium-sized enterprises are companies with a net worth of Rp. 500 million to Rp. 100 billion and annual sales of over Rp. 2.5 billion to Rp. 50 billion.

2.2.9.1 Characteristics of Micro, Small and Medium Enterprises

Anoraga (2002) divides the general characteristics of MSMEs under the following descriptions:

a. The bookkeeping system is carried out simply independently and is not in accordance with established accounting principles.

b. The profit rate tends to be small due to the intense competition between businesses.

c. Limited entity's capital.

d. Limited management's understanding about business organization.

e. It is difficult to emphasize costs due to the small scale of the business.

f. Marketing and negotiation capabilities as well as market diversification are very low.

2.3 Framework

Research framework used in this research is as follows:

Problem:

The accounting information system has not been running well so that financial information cannot be obtained optimally

Reference:

Dwijanatri, PN, & Nugroho, MA (2018). Designing Sales and Inventory Accounting Information Systems at Central Steak and Coffee Boyolali. Nominal Journal, p. 69-81.

Kocsis, D. (2019). A Conceptual Foundation of Design and Implementation Research in Accounting Information System. International Journal of Accounting Information Systems, p. 1-10.

Nuryanti, D., & Suprantiningrum, R. (2016). Analysis and Design of Sales Accounting Information Systems, Receivables and Cash Receipts (Case Study at UD. Practical in Magetan). UNTAG Scientific Journal Semarang, p. 100-104.

Strumickas, M., & Valanciene, L. (2010). Development of Modern Management Accounting System. Inzinerine Ekonomika-Engineering Economics, p. 377-386.

Solution:

Accounting information system design that can be used at UD Dior 77

Figure 2.5
Research Framework

For the problems that exist in UD Dior 77, an accounting information system is designed that can be applied and used by management to carry out accounting activities and produce credible financial information. The new system

created will cover up the revenue and expenditure cycle by making of income statement.

The new system will be in the form of software created using Microsoft Access 2013 with the SDLC waterfall approach. The stages carried out in system design according to the waterfall method, namely: planning, analysis, design, and implementation.