SMART Payroll Information System For Cooperative (Case Study at Cooperative Agro Niaga Indonesia Syariah Malang East Java)

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Abstract—**This research aims to provide an overview of the website-based employee payroll business process design at the Cooperative Agro Niaga Indonesian Syariah Malang, East Java. The payroll business process carried out by the company currently still has several weaknesses where the reporting process is still based on people to people causing high risks that occur during the reporting process. First, the process of sending personal electronic mail-based employee attendance reports takes quite a long time. This research shows that implementing financial information systems in companies has benefits in simplifying processes, saving cycle time, preventing errors, increasing standardization, and improving large-scale processes by automating company processes. The implementation of a website-based employee payroll accounting information system is able to provide more accurate, relevant and reliable information. Apart from that, having a website-based payroll accounting information system can make it easier to process data, obtain information and create employee pay slips.**

Keywords—**Payroll Information System, Business Process, Payroll, Business Model, Cooperative**

I. INTRODUCTION

An Accounting Information System is a structure that is integrated into an entity by using physical resources and other components to convert financial data and transactions into information that aims to meet the information needs of users and consumers (Wilkinson and Cerullo, 1995: 5). The accounting information system categorizes five business process cycles, namely the income cycle, expenditure cycle, production and conversion cycle, human resources or payroll cycle, financing cycle (Romney, 2016: 9). The human resources or payroll cycle is a series of business activities and related data processing activities related to the effective management of company employees (Steinbart and Romney, 2015: 469). In payroll there are several procedures regarding salaries including procedures for recording attendance time, procedures for recording working time, procedures for making salary and wage lists, procedures for distributing salary and wage costs, and procedures for paying salaries and wages (Mulyadi, 2013: 385). The rapid development of technology with good use can help everyday life. As can be seen, currently the need to obtain information has become an important need. Likewise with cooperatives, information systems are needed to help achieve goals and improve the quality of management. Advances in information technology have resulted in fast and accurate information processing capabilities in all types of companies (Suwarni et al, 2022). Payroll is a process that is important for the survival of the company because it covers an integral part of the company's operations.

Payroll is a process that is important for the survival of the company because it covers an integral part of the company's operations. The payroll process for employees of the Cooperative Agro Niaga Indonesia (Kanindo) Syariah Malang, East Java, is

currently still limited to manually sending online documents via email or social media. Planning, control, and reporting evaluation are still carried out people to people. So this poses a high risk for the company. Moreover, the actual payroll activities in this company are quite complex, where all payroll components have been calculated in Microsoft Excel, but the possibility of errors in the calculation and input process of employee salaries is also one of the risks. From here, the finance and human resource development departments check and record the results of salary calculations and employee attendance data, then check and report them manually to the management or treasurer. Then later the calculation results will be imported into a program, through this process the employee's salary will go into each employee's savings account.

Business Process Management (BPM) is an approach to increasing effectiveness and efficiency through building process automation and agility to manage change. BPM helps companies monitor and control all elements of business processes, such as employees, customers, suppliers and workflows. BPM improves the quality of business processes by providing better feedback mechanisms. Continuous and real-time reviews will help companies identify problems and resolve them more quickly before they escalate into bigger problems (Zuhaira & Ahmad, 2021). Meanwhile, Business Process Modeling Notation (BPMN) is a graphical notation that describes the logic of the steps in a business process. This notation has been specifically designed to coordinate the sequence of processes and messages flowing between actors in different activities. The main goal of the BPMN effort is to provide notation that is easy to understand by everyone, especially software engineers. Existing business analysts create initial drafts of processes to technical developments that include flow and work in the form of models or notations. BPMN also creates a standard bridge for the gap between business process design and process implementation (Bondar et al., 2020). The advantage of using BPMN is that it can describe the entire process flow in one simple diagram so that it can represent business processes that are relatively quickly understood, able to model message flow, and able to model sequential process flow from start to final result (Sari & Asniar, 2015).

The final stage in this research is to carry out quantitative and qualitative analysis of the To-be business process model to then compare the extent to which the improvement in the quality of the company's business processes has been achieved. The analysis process through modeling is a very effective method because it provides a more detailed and structured picture to produce better analysis (Reijers, 2021). This research carried out analysis and modeling related to company financial processes, especially in the employee payroll process. This research uses the case study method to analyze problem cases more deeply as research objects. In this research, a business model for the employee payroll process is formulated to integrate all company branch offices into the same payroll administration system. The analysis process is based on the Business Process Management System (BPMS), supported by modeling using Business Process Management Notation (BPMN). It is hoped that the results of this research will provide suggestions and a business model framework that can improve the effectiveness, efficiency and quality of the company's business processes.

II. LITERATURE REVIEWS

2.1. Accounting Information System

An Accounting Information System (AIS) is a collection (integration) of sub-sub systems or components, both physical and non-physical, that are interconnected and work together with each other in harmony to process transaction data related to financial matters into financial information (Susanto, 2013). The payroll accounting information system is an accounting information system that is used to handle or report transactions and provide information related to employee payroll. There are several functions related to the payroll accounting system, namely the personnel function, time recording function, salary and wage register function, accounting function, financial function. Apart from related functions, the payroll system also has procedures, namely procedures for recording attendance times, procedures for making payroll, procedures for distributing salary costs, procedures for making cash out receipts and salary payment procedures (Mulyadi, 2001:382-385). The payroll system plays an important role because this system will determine how much salary employees should receive. However, this system must be able to provide the correct salary level and on time. Companies provide salaries or wages to employees to stimulate employees to be willing to work well (Heidjrachman and Husnan, 1996:8).

2.2. Business Process

A business is an organizational unit that manages resources to provide products and services that customers need. Meanwhile, a process is a series of actions in carrying out operational activities to produce certain outputs. So a business process is a series of activities that take one or many inputs and create an output that is useful for customers. According to Paul Harmon, in his book

"Business Process Change" (2003), the definition of a business process is a series of activities carried out by a business which includes initiating input, transforming information, and producing output. This output can be valuable for business customers or markets, it can also be valuable for other processes (within the organization). A business process is a series of instruments to organize an activity and to increase understanding of the interrelationship of an activity. According to (Weske, 2007) a business process consists of a series of activities carried out in coordination in the business and technical environments. This series of activities together realizes the business strategy.

2.3. Business Process Model and Notation (BPMN)

BPMN is an abbreviation for Business Process Modeling and Notation, which is a new methodology developed by the Business Process Modeling Initiative as a new standard for business process modeling which is also used as a design tool in complex systems such as message-based e-Business systems. Business Process Modeling and Notation is a new methodology developed by the Business Process Modeling Initiative as a new standard for business process modeling which is also used as a design tool in complex systems such as message-based e-Business systems. (Ismanto, Hidayah, & Charisma, 2020) explains that BPMN is a standard modeling diagram for describing business processes that provides graphical notation for carrying out business processes. BPMN was designed not only to be easy to use and understand, but also has the ability to model complex business processes and was specifically designed with web services in mind.

2.4. Previous Research

Research entitled Integrated Hospital Payment Information System Modeling Analysis Using the Pieces Method by Mone, Ekasari and Kusmintarti (2023) found that business procedures utilize all the resources offered by the company to achieve its goals. To create a business process model that can solve the problems revealed in this research's payroll process analysis, a qualitative case study methodology was applied. The findings suggest that the suggested business process model, which is based on a Business Process Management System, can help hospitals improve the effectiveness and efficiency of their operational procedures. Second, Analysis of Integrated Petty Cash Financial System Modeling Based on Business Process Management by (Pratama, Ekasari & Indrawan, 2022). This research aims to analyze the modeling of an integrated petty cash financial information system using the Business Process Management System concept, the research result is a business process model based on Business Process Management Notation (BPMN) which can increase effectiveness and efficiency so that it has implications for improving the quality of the company's business processes. Analysis and Modeling of Business Processes Using the Business Process Model and Notation (BPMN) Method in Shuttlecock Production by (Muttaqin & Utami, 2023) based on analysis and modeling of business processes, several problems were found that could hinder the progress of each process, namely starting from the shuttlecock production business process, namely not there is a party responsible for the shuttlecock production process, there is no recording of production results after shuttlecock production. In the employee payroll business process, no party manages finances properly and correctly and there is no recording of expenses. In the sales transaction business process, no party focuses on marketing in serving buyers and there is no recording of income when a sales transaction occurs. In the raw material sorting business process, we do not yet have a permanent supplier, so it can cause confusion if there is a shortage of fur raw materials. The problems encountered are the result of identification originating from the model that has been created, namely based on the BPM design, the results of interviews. It seems that this problem can be used as a prediction in the implementation of future activity programs.

III. RESEARCH METHOD

This research is a qualitative case study (explanatory case study). Case studies are the process of seeking empirical knowledge to investigate and examine various phenomena in real-life contexts. The advantage of the case study method is that the how or why research question is directed at contemporary events so that the researcher does not need little or no time to control it. The analysis technique uses a case study design by (Yin, 2009), with the first analysis stage being data collection. Data collection in this research used interviews, observation, documentation and literacy studies. The second stage is identifying cases. This stage is carried out by selecting the data and information collected to focus on the case study problem. The next stage is to conduct an in-depth analysis based on the "How" and "Why" question patterns. At this stage, a solution will be formulated for the case problem being analyzed.

IV.   RESULT AND DISCUSSION

Analysis of the employee payroll business process at the Cooperative Agro Niaga Indonesia (Kanindo) Syariah Malang, East Java is based on minimum wage standards set by the governor at the provincial level and then added with allowances or bonuses as well as overtime pay and other allowances. The payroll data processing process in cooperatives already uses Microsoft Excel but there are still weaknesses that may occur, but it is better than using a manual process with less efficient book records. In order to streamline the employee payroll business process and minimize work errors, an SOP is needed which is the basis for human resource development in managing employee payroll so that there are no obstacles and minimizes errors that may occur. Employee payroll activities carried out by the head office are a process of accountability for the distribution of rights that will be received by each employee. The business process and employee payroll activities are as follows, every month human resource development records employee attendance for 12 cooperative branches in Malang City. Employee attendance documents are taken directly by the human resource development section at each cooperative branch and then a recap of the employee attendance list is made. This document is then given to the cashier and finance staff to be used as a reference in calculating employee attendance allowances. The next stage is that the salary calculation details are returned to internal control to check whether the calculations are in accordance with the attendance data. Not only are they given to the internal control section, but the chairman and treasurer will also carry out checks regarding the salary details. If the salary details document is correct, the chairman and/or treasurer will authorize the cashier and finance staff to proceed to the next stage, namely creating a salary list. Through this stage, the salary will automatically go into each employee's account every 25th of the month. Based on these details, for more detail, the description of the business process for employee payroll reporting is as follows.

The payroll business process carried out by the company currently still has several weaknesses. As explained in the background to the previous problem, the reporting process which is still based on people to people causes high risks that occur during the reporting process. First, the process of sending personal electronic mail-based employee attendance reports takes quite a long time, because human resource development staff have to check one by one whether all branch offices have sent employee attendance lists. If there are currently several branch offices, the head office's human resource development will receive employee attendance lists simultaneously via different electronic mail. At this point, the head office's human resource development experienced difficulty in following up on electronic mail sent from the branch office. Furthermore, the process of checking and recapitulating employee attendance becomes less effective. This is because human resource development needs to synchronize attendance reports one by one for each incoming electronic mail. Company management cannot exercise direct control over employee payroll. Processing only relies on one door and the process flow cannot be monitored directly. In fact, effective and efficient business processes are one of the keys to a company's strength in realizing a more optimal company vision (Prokopenko et al., 2020).

Based on the results of the previous analysis, this research will create a payroll business process model to increase the efficiency of the company's payroll process. In the proposed new payroll process business model, it will increase the activity of using the accounting information system, so the payroll process will become more effective and efficient. The image below shows business process modeling with the help of the payroll information system at the Cooperative Agro Niaga Indonesia (Kanindo) Syariah Malang, East Java to improve the quality of the payroll process. The explanation of the proposed business process is as follows, first starting by recapping employee attendance via fingerprint or you can also use Google Form. Furthermore, the report on the recapitulation of employee attendance is reported into the system by human resource development. Next, the cashier and finance staff can process employee attendance reports that have been uploaded to the system and carry out the next stage, namely calculating the payroll. Then the chairman and treasurer carry out inspection and verification of the employee payroll reports in the system. Then provide feedback on the verification results directly through the system. When the report is not received or there are errors, it will get a sign in the payroll information system so that it can then be re-checked by the cashier and finance staff. The final process is to carry out authorization, payroll reports that have passed verification from the chairman and treasurer can directly send salaries to each employee's account. Next, the process of printing employee salary slips will be automatically carried out in the company's payroll information system database. By using an Accounting Information System as described in the model, all company databases are in the same facility. So there will be no errors in storing and searching for financial data that might be lost as in the previous process. The following in Figure 2 is a business process modeling assisted by an employee payroll accounting information system, which is proposed to improve the quality of cooperative business processes.

The proposed employee payroll business process provides an increase in the effectiveness and efficiency of the company's business processes. Firstly, saving time in carrying out the employee payroll reporting process. The long process via personal electronic messages takes quite a long time, in contrast to using the system in Figure 2 which can cut business process time much more quickly. Reduced processing time indicates improvements to the company's business processes (Sugiyama & Schmidt, 2014). To process one output, the time savings that can be made will have a dominant impact on the optimization of subsequent processes in a row. This will be a good improvement for the company considering the company's economic principle of getting maximum profits with the smallest sacrifices (Pratama, Muwidha, et al., 2021). The proposed new business process model, which is based on a Business Process Management System, can help companies improve the effectiveness and efficiency of their operational procedures (Mone, Ekasari & Kusmintarti., 2023; Pratama, Ekasari & Indrawan., 2022). The proposed new business model also results in increased control over the payroll process in a more systematic way. Company management has access to an accounting information system in which direct control over payroll activities can be carried out through website-based applications (Al-Dmour et al., 2018).

Finally, by using the Accounting Information System as described in the latest model, all company databases are in the same facility. So there will be no errors in storing and searching for financial data that might be lost as in the previous process. The database in the system has an important role in optimizing the company's financial data archiving process. This good internal control system functions to manage and control company risks properly so as to create healthy and safe operational activities. Having an electronic database that is directly connected to the company's financial system can be a management tool for carrying out more optimal control. In the end, modeling the employee payroll business process depicted in the picture above improves company management to make more optimal strategic decision making. This is because the financial and economic information produced from this business model is of higher quality. So that company management can more easily process company financial data more precisely. With the proposed business model, company management obtains relevant company financial information with real-time access to the company's financial system.

The proposed payroll process is expected to be well systemized (Systemize), reduce less efficient business processes (Minimize), be easily accessible to employees who have interests (Accessible), be able to record and store employee payroll data every month in the system safely (Record), and the resulting output can be trusted (Trust). Systemize, the Cooperative Agro Niaga Indonesia (Kanindo) Syariah Malang East Java cooperative has not currently implemented a computerized payroll business process. Therefore, creating a website-based payroll system can help cooperatives facilitate the management of business processes so that employee salaries can be distributed properly. The advantages of using a website-based system include saving time in processing employee payroll, and having high accessibility where employees and managers can access this application from anywhere as long as they are connected to the internet. Minimize, to complete work by saving time accurately and quickly, various methods are used to achieve goals such as changing the payroll business process to a more systematic one. In this case, before being website-based, the process of creating employee pay slips must be created one by one in an excel file according to the details of the salary that will be received by each employee. In the website-based payroll process, pay slips will automatically be printed in the form of a PDF file according to the name of each employee. Then, to see the total employee salaries each month in the pre-website-based process, you must open the excel file for the current month to find out the total salaries of all employees. Meanwhile, in a website-based payroll system, the salary amount for the current month will be visible automatically on the dashboard menu. Accessible, the payroll business process carried out by companies currently still has several weaknesses. As explained in the background to the previous problem, the reporting process which is still based on people to people causes high risks that occur during the reporting process. First, the process of sending personal electronic mail-based employee attendance reports takes quite a long time, because human resource development staff have to check one by one whether all branch offices have sent employee attendance lists. Meanwhile, in the proposed new business process, the process of calculating employee attendance via fingerprint will be captured automatically using a Google form which can be uploaded into the system by human resource development staff. Record, to view the results of employee payroll reports that have been input into the payroll system each period. On this page the user can enter information on the cooperative's payroll. As explained in the analysis, the cooperative employee payroll in this study includes all employee salaries in each branch. Apart from that, a "detail and add data" function is provided for inputting employee salary calculation results files in Excel form for the purpose of printing pay slips. Trust, the final result of the long process regarding employee payroll is a pay slip. The implementation of a website-based employee payroll accounting information system is able to provide more accurate, relevant and reliable information. Apart from that, having a

website-based payroll accounting information system can make it easier to process data, obtain information and create employee pay slips.
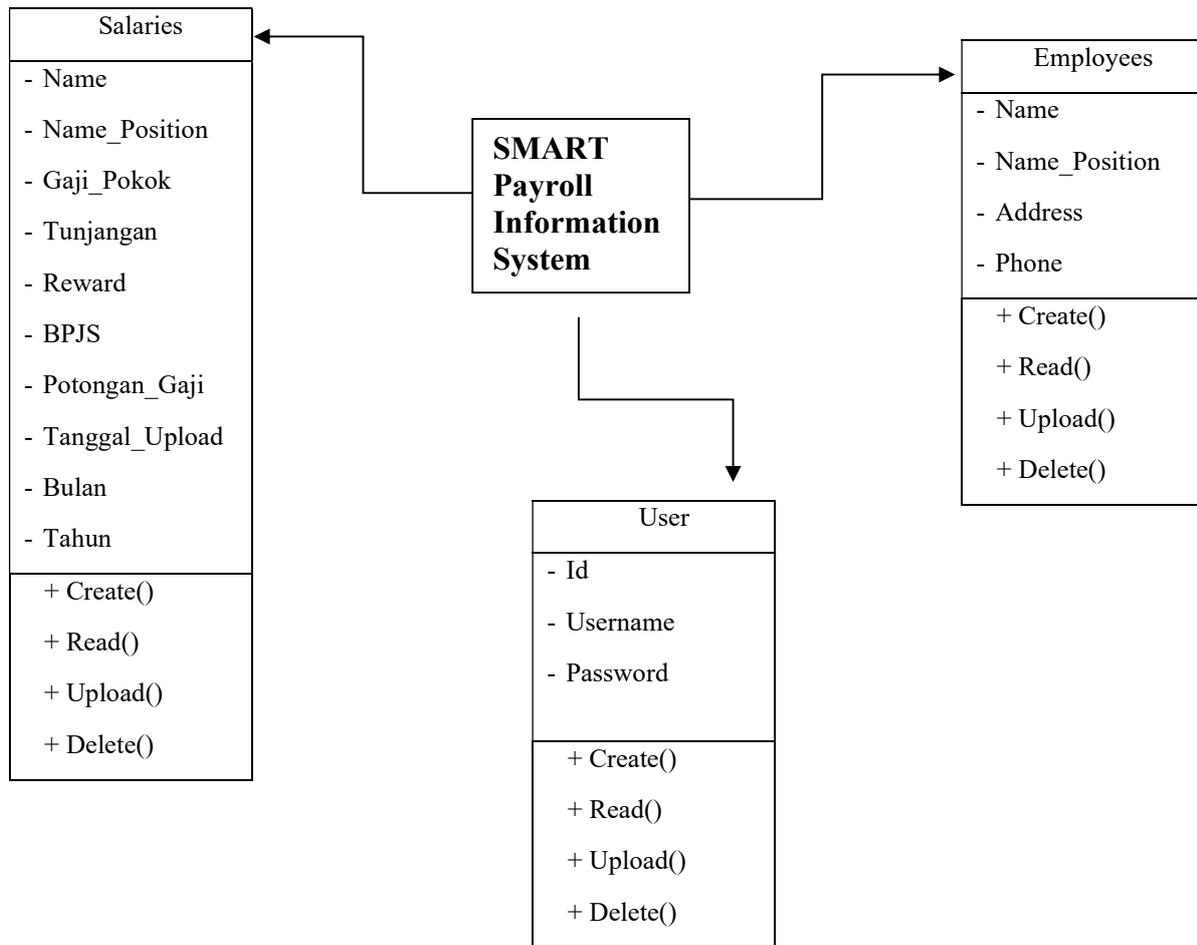

Figure 1. Class diagram

The class diagram depicts the three classes contained in this website-based employee payroll system, namely Users, Employees and Salaries. A use case diagram is a general functional description of a system being developed so that it is easier to understand the use of the system to be built. To design an employee payroll system that will be developed, it is necessary to create a use case diagram as in the image below:
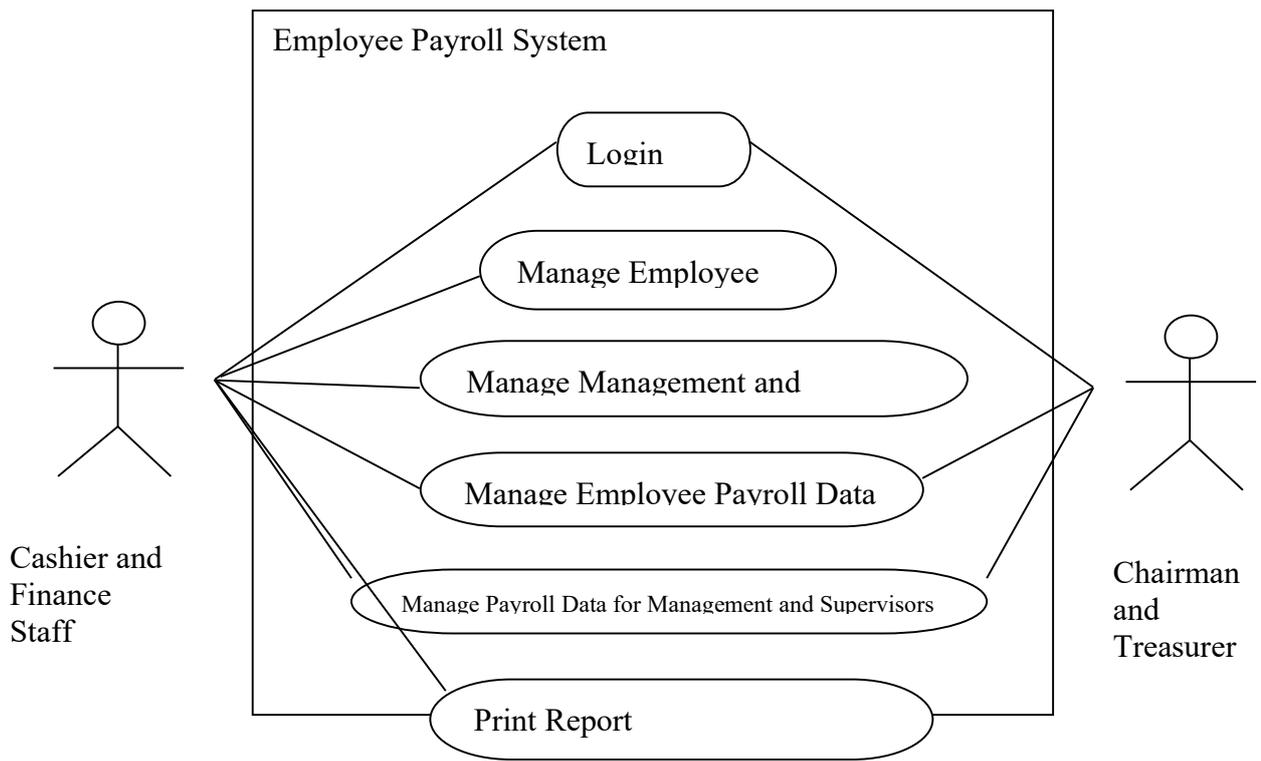
Figure 2. Use case diagram login

The context diagram is part of the data flow diagram layer, the context diagram is shown in the image below which shows the overall system design.
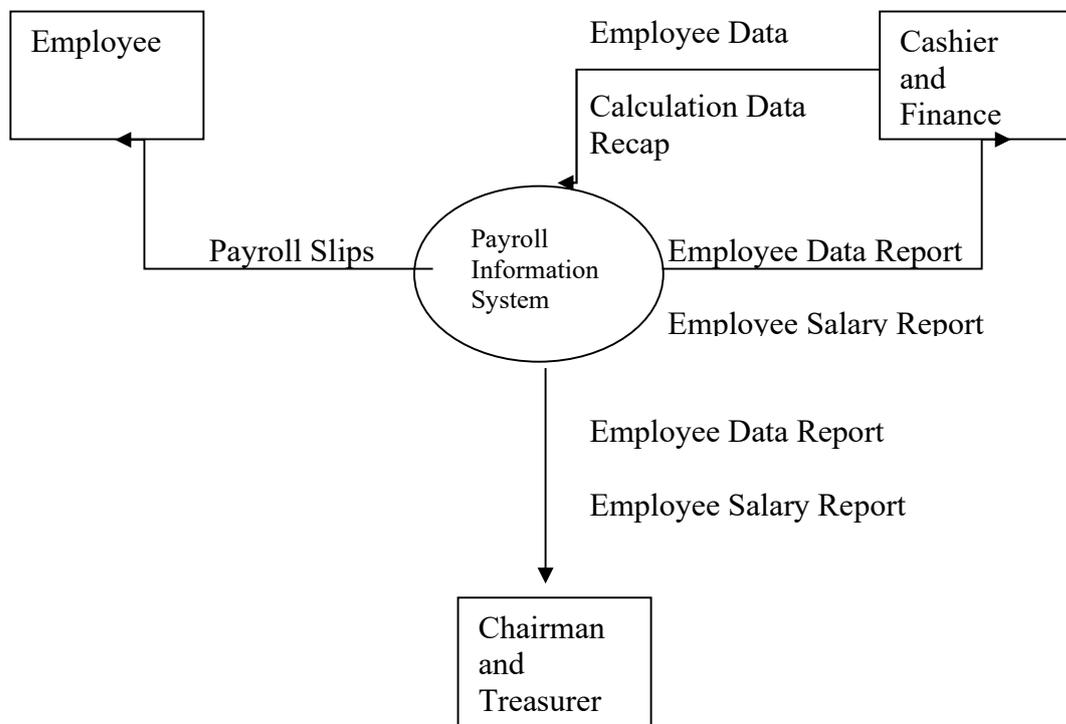

Figure 3. Context diagram

V. CONCLUSION

The foundation of every activity carried out in a business or organization is its business procedures. Business procedures utilize all the resources a company has to offer to achieve its goals. In creating a business process model that can solve a problem revealed in the company, this research analyzes the payroll business process. Business processes are the core of all activities in a company or organization. To achieve company goals, business processes will manage all the resources available in the company. In this research, it was found that there were business process problems in the employee payroll process, one of which was the salary calculation process and missing archive files. This research uses qualitative case study techniques to formulate a business process model that can overcome these problems. The proposed payroll process is expected to be well systemized (Systemize), reduce less efficient business processes (Minimize), be easily accessible to employees who have interests (Accessible), be able to record and store employee payroll data every month in the system safely (Record), and the resulting output can be trusted (Trust). The implementation of a website-based employee payroll accounting information system is able to provide more accurate, relevant and reliable information. Apart from that, having a website-based payroll accounting information system can make it easier to process data, obtain information and create employee pay slips. The study results show that the proposed business process model based on the Business Process Management System can be an alternative for companies to increase the effectiveness and efficiency of the company's business processes. By implementing this model, the quality of the company's business processes can be improved. With this modeling, continuous evaluation and improvement can be carried out more optimally for the company in the future.

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