



## Payroll System Design With SDLC (System Development Life Cycle) Approach

Mhd. Dominique Mendoza<sup>1</sup>, Tansa Trisna Astono Putri<sup>2</sup>

<sup>1,2</sup> Department of Electrical Engineering, Universitas Negeri Medan, Medan, Indonesia

E-mail: aenaen@unimed.ac.id, tansatrisna@unimed.ac.id

### ARTICLE INFO

#### Article history:

Received: 26 February 2020

Revised: 22 Maret 2020

Accepted: 01 May 2020

#### Keywords:

Payroll system, SDLC, Salary, Report

### ABSTRACT

*The HR technologies are predominantly used for HR administrative applications, including payroll and benefits administration, this research has profound implications on the evaluation of their effectiveness. A failure to pay people on time and the right amount can cause immense employee dissatisfaction and distress which in turn can severely dent the employer branding. By adopting the system development life cycle (SDLC), this study captures the key factors that should have been taken into account in designing, implementing and rolling out the new payroll system at PT. Faramiga Sindo Energi. The factors that contribute to the success or failure of project implementation are the same which reinforce their reliability and validity. By using the payroll system, the resulting payroll information is more complete, efficient, fast and precise than the previous system which always experiences delays in presenting payroll report information. With the implementation of the program that has been designed, the system can provide convenience in the process of calculating salaries and can find out the salary report quickly and can be requested at any time when needed.*

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## 1. Introduction

Today, public organizations and private organizations are under pressure to seek ways of 'doing more with less' this means that acquiring more 'value' in order to maintain its competitiveness. The failure rates of new IT systems in general are measured in their ability to meet deadlines, to be within budget and fulfilling the key objectives [1]. However, research also shows that it is not technology, but wrong implementation and poor understanding of social processes, including organizational rigidity and resistance to change which are the main reason for companies not to achieve all or most of their key goals in any technology project implementation [2].

Payroll processing is one of the first and most frequent automations of HR activities [3]. While by itself it adds no value to a firm's competitive advantage, pay slips are the most scrutinized documents by employees and therefore, an incorrect payment of pay can lead to intense employee dissatisfaction.

Salary is an amount of money given to someone or employee in return for services for the business or work that has been done to the company. In providing salaries every company has different system, salaries given to workers also differ according to their position and class level. So it is not surprising that a company has difficulty in calculating the salary of the workforce. This is generally due to the large number of workers and the time taken to calculate salaries is very short which is usually done at the end of the month. Salary is part of compensations, compensation is something that received by employee as a recompense of their contribution and services to the company (MD Mendoza et. al.) [4].

This research was conducted at PT Faramiga Sindo Energi. PT Faramiga Sindo Energi is a distributor company engaged in LPG gas and gasoline, which at the end of the accounting period (months) does the payroll process for its employees and makes a salary report as a responsibility to the leadership of the company. The process of recording and calculating salaries applied by companies is still manual so that the salary process is often late. Therefore this company actually needs a salary calculation system that is





fast and accurate so that the work process of the personnel and cashiers becomes more efficient.

## 2. Literature Review

### 2.1 System

System is a group of elements that are closely related to one another, which function together to achieve certain goals. System is a relationship and interaction that takes place between an unit or component on a regular basis so that the goals and objectives of the system can be achieved [5].

### 2.2 Information

Information is data that has been processed into a form that is important to the recipient and has a real value or that can be felt in the current or future decisions. Information is a number of data that has been processed properly and is useful for the user and called information if the data has been processed in accordance with the needs of the users [5].

### 2.3 Information Systems

Information systems are systems within an organization that meet the needs of daily transaction processing, assist and support the operations, managerial nature of an organization and help facilitate the provision of the necessary reports. Information systems are data that are collected, grouped and processed in such a way as to become a unity of information that is interrelated and mutually supportive so that it becomes valuable information for those who receive it [5].

### 2.4 System Development Life Cycle

System Development Life Cycle (SDLC) is an approach through several stages to analyze and design a system. The following is a picture of the system development life cycle can be seen in Figure 1.

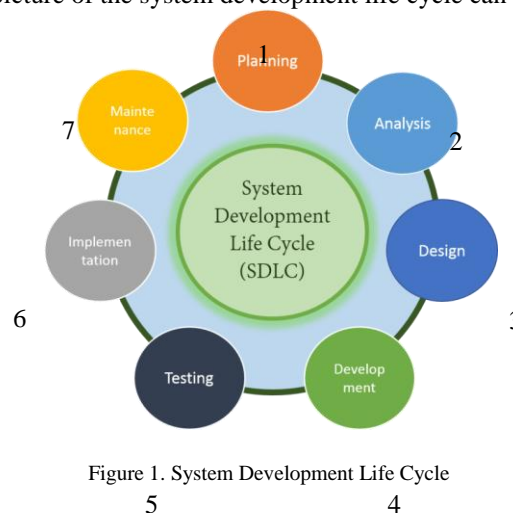


Figure 1. System Development Life Cycle

### 2.5 Planning

At this stage the feasibility of a system will be reviewed, both in terms of cost, technical and operational. Some of the activities carried out include:

- Identify the problem that will be solved by the system, as well as objects related to it.
- Identifying business value, in the form of planned expenditure for the cost of making the system and an estimate of the amount of revenue after the system is made.
- Make a work plan, allocate work time and use of resources.
- Organizing project teams.
- Control and direct the project.

### 2.6 Analysis

At this stage an examination of the ongoing system with the aim of obtaining complete documentation of the needs of system users (in this case end users), the scope (scope) of the system, as well as ways to build new systems, and the activities carried out:



- a) Analyzing the needs for information, hardware and software related to making the system. Usually made in a documentation of the requirements specification called Software Requirement Specification (SRS).
- b) Analyzing the scope of the system.

## 2.7 Design

At this stage a system work flow is described and the design of the data model and the design of the programming from the needs analysis. This stage produces a prototype system, which is a system design that is ready to be developed, and the activities undertaken:

- a. Database design.
- b. Graphic design.
- c. Design programs.
- d. System security design.
- e. Compilation of system proposals to be developed.

## 2.8 Development

At this stage, development of a prototype system that has been made beforehand is carried out. The result is complete software, but generally in the form of desktop or web-based applications. Activities undertaken are writing lines of program code and its execution, database programming and creation of user interfaces.

## 2.9 Testing

At this stage, testing of the system (software) has been made to check whether the system has worked optimally. If there is damage to the system, the system will be repaired (debugging) to obtain a good and ready to use software.

## 2.10 Implementation

At this stage, software that has passed the testing phase is implemented in real terms by the end user. The activity carried out is the installation of software on the end user's computer, then the end user uses the software according to their needs.

## 2.11 Maintenance

This stage is usually a continuous phase and is only carried out at certain times. Activities undertaken are the maintenance and improvement of the system. The goal is to maintain the performance of the system.

## 2.12 Salary

Salary is a substitute for services that workers done with more constant tasks and determined by calculating a longer period such as monthly, quarterly or annually. Whereas wages are payments for the delivery of services performed by employees based on the amount of work completed, for example the number of production units. Information needed by management from payroll and remuneration activities:

- a. Journal of salary and wage costs that are borne by the company during the accounting period.
- b. Total salary and wage costs incurred during the accounting period.
- c. The total salary and wages received by each employee during a certain accounting period.
- d. Details of the salary and wage costs that are borne by the company and each liability during the accounting period.

## 3. Research Methods

### 3.1 Information Systems Requirement Analysis

This analysis consists of four parts, namely:

- a. Analysis of Input Documents, Analysis conducted on input documents used in the payroll system for PT. Faramiga Sindo Energi consists of employee forms, employee lists and attendance cards and overtime cards.





- b. Procedure analysis, payroll document system of PT. Faramiga Sindo Energi started with calculating the number of absences of an employee through the attendance card, then the salary is calculated by the accounting section after the position level and class of an employee, then the cashier immediately issues a salary slip submitted to the management first to be signed and then the salary process can be carried out and can be seen from Figure 2.
- c. Report analysis, is a report that contains the salaries of employees who work at PT. Faramiga Sindo Energi. In addition to employee salary reports, salary slips are also one of the reports that will be presented to the leadership as proof of salary submission to each employee concerned
- d. User Interface, the user interface menu of the payroll information system consists of 4 items and can be seen in Figure 3.
  - a. Data Menu, used as the basic form for master data input namely class, rank and employee data.
  - b. Process Menu, used as input for work process data namely attendance and overtime.
  - c. Report Menu, used as a report to present payroll information system.
  - d. Window Menu, used to adjust the appearance (location) of the form on the program screen.

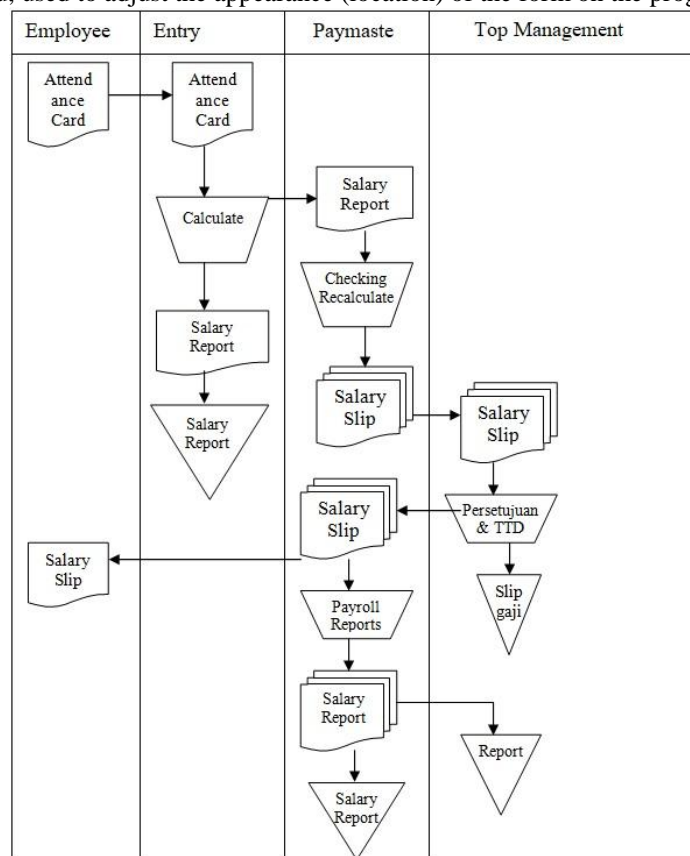


Figure 2. Payroll System Flow of Document

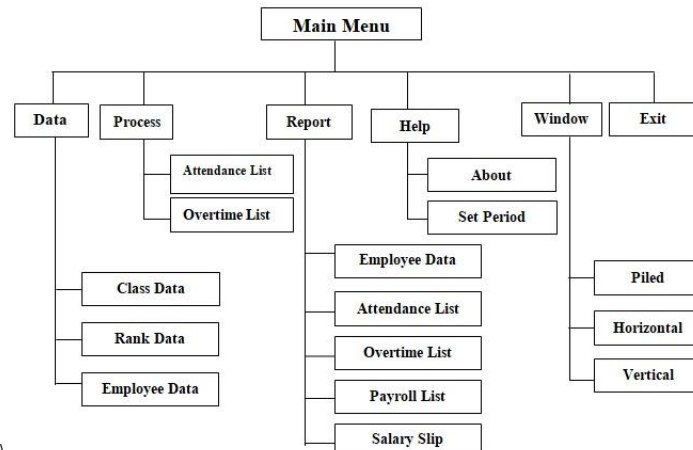


Figure 3. User Interface

#### 4. Discussion & Conclusion

The HR technologies are predominantly used for HR administrative applications, including payroll and benefits administration, this research has profound implications on the evaluation of their effectiveness. A failure to pay people on time and the right amount can cause immense employee dissatisfaction and distress which in turn can severely dent the employer branding.

By adopting the system development life cycle (SDLC), this study captures the key factors that should have been taken into account in designing, implementing and rolling out the new payroll system at PT. Faramiga Sindo Energi. The factors that contribute to the success or failure of project implementation are the same which reinforce their reliability and validity.

Payroll system implemented by PT. Faramiga Sindo Energi is now a monthly payroll system that is submitted directly to each employee concerned. In its employee payroll system uses absent cards and overtime cards (combined with absent cards) as company input documents in calculating employee salaries. The absent card used is a clock card system that is inserted into the absent machine at the time of entry and discharge of the employee concerned. The work system for calculating the salaries of PT. Faramiga Sindo Energi is still done manually (not computerized) which is calculated by the Bookkeeping section and paid by the cashier after being checked first, where there are often some weaknesses including:

- Error often occurs in recording attendance lists so it is less efficient and less effective.
- A lot of work is done repeatedly so it requires a lot of time and accuracy in processing data.
- Sometimes bookkeeping cannot find out employee salary reports quickly because they have not used a computerized system so it requires a long time in calculating salaries.
- Reports received by top level management are not in accordance with those at the cashier because fraud often occurs.

To overcome these problems a computerized payroll system is designed using the Visual Basic 6.0 programming language. In this proposed system all work is done using a computer so as to minimize the weaknesses that exist in the current system, the advantages of the proposed system are:

- Data processing process becomes more efficient, effective and accurate, by using a PC, all data processing can be handled and processed quickly so that it can save time and energy in doing work.
- Can produce various reports in a relatively short and repetitive period of time and can be requested at any time when needed.
- Salary calculation is easier because everything is done computerized and the report will look neat.

#### 5. Conclusions

Manual payroll system used by PT. Faramiga Sindo Energi is less effective, efficient and accurate in terms of salary calculation and salary report presentation. By using the payroll system, the resulting payroll information is more complete, efficient, fast and precise than the previous system which always experiences delays in presenting payroll report information. With the implementation of the program that



has been designed, the system can provide convenience in the process of calculating salaries and can find out the salary report quickly and can be requested at any time when needed. Case studies confirm the main message in the literature that payroll information systems are very important and underlying and can increase the level of employee satisfaction at work, which stated from previous study that there is a significant influence of compensation on employee motivation to work.

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