Utilization of Information System in Electrical Panel Project Management to Provide Various Facility in Project Implementation

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Abstract. The development of technology, especially in the field of information and communication from year to year plays an important role in human life. At present many projects specifically deal with work in the field of information technology. Project management is a scientific discipline in terms of planning, organizing, managing, to be able to achieve project objectives. For a small company that is just running a business, a system that can do the processing of a project is needed. Usually the data processing and project control processes still use manual paperwork and result in not requiring a lot of time so that it impacts on the preparation of project reports. The existence of a project management system can make it easier to make reports on the results of ongoing projects. The research method used consisted of; data collection methods, namely: interviews, observation, and literature study. For analysis using the BSC (Balanced Scorecard) analysis method. This system is made using PHP programming language and Mysql database. The system design uses the design of the UML (Unified Modeling Language) model. The testing method used is the Black box Testing method. The results of this study are a project management application system that helps companies in terms of data management, starting from the tender project, material data, until the reports generated.

1. Introduction
Project management is a strategy that needs to be done in achieving the efficiency and effectiveness of a company. Generally, a company has a computerized project management but the processing is still using Microsoft Word and Microsoft Excel. The data collection process also requires a lot of time so that employees who want to make reports on project management require high accuracy. Because every implementation using a computerized system is needed to see each activity carried out more effectively and efficiently and produce precise and accurate reports. With the existence of a project management information system, the recording and reporting of project management results can facilitate the processing, control and monitoring of ongoing project activities. The application of information systems to project management is very important. As an example of research according to Puji Rahayu, Andi Tri Haryono, Leonardo Budi (2017: 2) \cite{1} which states that based on the calculation results show that the information system variable, optimization of time and cost of functional quality on project quality that have an impact on increasing company performance is significant. In addition...
to implementation, other examples of project activities and implementation consist of various processes and procedures that must be carried out jointly between the contractors, consultants and stakeholders as capital holders. Utilization of information systems in project management needs to be done to provide various facilities for the implementation of the projects carried out. Heru Setiawan, M. Qadafi Khairuzzaman (2017: 110) [2]. As in companies engaged in the field of electricity and manufacturing electric and class switchgear controls have work items, such as Low and Medium - Voltage Switchgear (up to 24 kV), Relay Control panels, and Low Voltage Distribution, and lighting panels. In addition, the company usually manufactures Motor Control Centers, Generator Control Panels, and control panels for motors & pumps. The company certainly has a planned project management. Good management is related to the management of activities such as scheduling, human resource management which will lead to the estimated cost of the project that needs to be budgeted by the company (Arianie and Puspitasari 2017) [3]. Project management is a scientific discipline in terms of planning, organizing, managing (running and controlling), to be able to achieve project objectives. A project is a temporary activity that has been determined at the beginning of its work and completion time (and is usually always limited by time, and often also limited by funding sources), to achieve specific and unique goals and results, and generally to produce a change that is useful or that has added value.

1.1. Problem
The process of managing project data is still using manual data so it requires a long time and loss can occur. At the time of checking how many successful or unsuccessful project tenders are still using manual data, so there is a delay in decision making for other projects.

1.2. Scope of work
Based on the problems mentioned above in this study about the utilization of information systems to support project management, the scope of this discussion starts from the process of project management data input to the process of making project management reports. This is done in order to stay focused on the core of the discussion.

2. Method
The analysis section uses the BSC (Balanced Score Card) method which is an analysis strategy that is expected to help the company achieve its objectives from several financial, customer / customer perspectives, internal business processes, and learning and growth. According to Bain, Firli, Zein, and Dwi (2015) [4], the Balanced Scorecard is a method of performance measurement that not only refers to financial aspects, but also to other non-financial aspects. The Balanced Scorecard provides a framework that is used to translate missions and strategies into goals and measures that can be seen from four perspectives. The four perspectives are Financial Perspective, Customer Perspective, Internal Business Process Perspective, and Learning and Growth Perspective. For model design, UML (Unified Modeling Language) model is used which includes Use Case Diagrams, Sequence Diagrams, Activity Diagrams, and Class Diagrams. In making the system using the PHP programming language, using the CI framework, MySQL for databases, Sublime Text to create designs or views, and XAMPP as a server or connecting programming language. Table 1 below is a matrix of balanced scorecard analysis based on company strategy 1. Increase revenue, 2. Improve quality, 4. Develop products, 5. Improve service accuracy and 6. Improve the quality of human resources

3. Result and Discussion
Based on the system analysis set out in the balance scorecard above, the next step is to discuss the system that will be proposed. The proposed system has 3 actors who play a role in the
Table 1. Balanced Scorecard Analysis Matrix

| Departement       | Objective          | Measure                  | Target       | Initiatives                          |
|------------------|--------------------|--------------------------|--------------|--------------------------------------|
| Finance          | Total Sales Revenue| 1. Amount Annual Income  | 1.8M         | Making Brochures and advertisements  |
|                  | Revenue Per Project| 2. Amount of Revenue Per project | 30%         | Increase Promotion                   |
|                  | Customer           | 2. Number of Customer per year | 15 Products | Increase Promotion                   |
|                  | Project            | 3. Number of Project per year | 10 Customers | Build a relationship with the Customer |
| Sales            | Project Management | 1. Service Speed         | 14 Day       | Corresponds to the specified scope   |
|                  | Accuracy           | 2. Number of complete projects | 100%        | Jobs desk in accordance with their fields |
|                  | Project Delay      | 3. Number of Project Delay | 10%         | Monitoring project processes         |
|                  | Project Status     | 4. Number of projects that match the stage | 100%        | Monitoring project processes every week |

Information system of this project are the Project manager, service solution team and finance.

3.1. Process Flow diagram
Project Manager can carry out activities in the system including: login, view the dashboard, manage data materials & tools such as CRUD (Create, Read, Update, and Delete), can manage project data & tools such as CRUD (Create, Read, Update, and Delete), can display progress, can display project profile, can logout. Service & Solution Team can carry out activities in the system, among others: login, can display dashboard, can add user data, can display user roles, can manage project status data such as read, update, and delete, can logout. Finance can carry out activities in the system, among others: login, display dashboard, can display material data reports, can log out. Figure 1 below is a diagram of the process of the project management system for the 3 actors described using the use case diagram. This is in line with the opinion of project management according to Wiratmani and Prawitasari (2015: 212), "Project management is all the planning, implementation, control and coordination of a project from the beginning (idea) to the end of the project to ensure project implementation on time, on cost and right quality ". In Figure 1 below is explained the ability of the project management information system that is a dashboard that functions to monitor everything related to the project. Besides that, there are also menu for Project Material, Project Data, Data Profile, Service Solution, Project Progress and Finance.
3.2. Feature & Benefits
The following are the features of the project management information system:

- **Streamline Capital Projects**: Track construction, Service improvements, restacking projects, restorations, and more.
- **High-level Views of Projects can be shown in the dashboard**: Quickly review the status of linked projects from a single program record, actively monitor action items, cash flow, and project risks.
- **Update Tasks On-the-Go**: Pull customer documentation, review invoices, and discuss project resources, projects task, or action items.

3.3. Advantages of the Management Project Information System
Following are some of the advantages of a project management information system:

- **Project management information systems guarantee project data**
- **Project management information systems help the service & solution team when checking how successful or unsuccessful project tenders are**.
- **Data search and processing - project management data can be done quickly and easily, so the process of editing and updating the project data status does not require a long time**.
- **Gain Complete Project Knowledge**: Manage tasks, track line items, real-time information sharing, drill into accounts profile, POs, invoices and receipts.
- **Provide Actionable Insights**: Give real-time information with details your financial team and make better on-the-spot-decisions.
- **Simplify and Standardize Processes**: Utilize best practices so everyday tasks become more efficient and productive.

3.4. Layout Design
4. Conclusion
By utilizing information systems in project management, making a project efficiency to drive faster completion times and faster openings of other projects. Optimize workflow to improve communication and collaboration, increase efficiency, reduce costs, and deliver on time and within budget.

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Figure 4. Project Data Menu - Project Management Information system

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