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ERP Implementation in Industrial Construction Company

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Enterprise Resource Planning (ERP) systems have transformed businesses around the word and become vital strategic tools in today's competitive business environment. Process is more efficient, costs are reduced, positive customer service is more accepted. An ERP system allows an company to integrate all the primary business processes in order to enhance efficiency and maintain a competitive position. A business process is a collection of activities or tasks interrelated that takes one or more kinds of input and produces an output, such as a report or forecast, to achieve a particular purpose. This article discusses about how to determine the needs of ERP modules for the implementation of ERP in PT. XYZ, which is one of the national construction company. This article also presents business process in PT. XYZ. From that business process, the needs of ERP modules for PT. XYZ can be identified. The ERP modules used are ERP software package known as Industrial and Financial System (IFS) from Sweden, which is an ERP software package selected by PT. XYZ.

Keywords: Business Process, Enterprise Resource Planning (ERP), Industrial and Financial System (IFS)

1. Introduction

Enterprise Resource Planning (ERP) systems have become vital strategic tools in today's competitive business environment. An ERP system allows an company to integrate all the primary business processes in order to enhance efficiency and maintain a competitive position. Enterprise Resource Planning (ERP) is cross-functional enterprise system driven by an integrated suit of software modules that supports the basic internal business processes of a company [1]. A business process is a collection of activities or tasks interrelated that takes one or more kinds of input and produces an output, such as a report or forecast, to achieve a particular purpose. ERP software supports the efficient operation of business processes by integrating all tasks throughout a business [2].

The main purposes for adopting ERP are the modernization of systems, greater usability and flexibility, integration of systems, business process reengineering, an increase in the degree of electronic data interchange including the provision of Web-based interfaces to application systems, reduced maintenance and risk avoidance [3].

To adapt to today's competitive business environment, companies are implementing ERP systems to reach a ability to plan and integrate enterprise-wide resources in order to shorten working times, and to be more responsive to customer demands [4]. Implementing ERP systems help company to adapt to today's challenging and competitive business environment[5].

Another article defined that only a small number of ERP software are extended for the industrial construction company and this might be one reason of its slow implementation in the construction industry. The ERP software vendors must work with the professional in the construction industry to extended more customized solutions for the contracting companies[6]. As one of national construction company with solid reputation and achievement, PT. XYZ also need to implement ERP systems. The main business PT. XYZ is building many Power Plant, Fertilizer Plants, Cement Plant, Mining Plant, Recovery Boiler, Pulp and Paper Mills, Steel Mills ad Oil & Gas, and Petrochemical Plant around Indonesia.

PT. XYZ decided to use IFS applications (Industrial & Financial Systems) as ERP systems that implemented in the company. IFS is an ERP business application that was founded in 1983 in Sweden whose providing business application solutions. The modules exist in IFS is Forecasting and Planning, Procurement, Warehouse Management, Sales and Distribution, and Business Intelligent. The applications are offered in IFS can be seen in the Figure 1.

2. Implementation Methodology

The main objective of this article is only to determine the modules and applications of IFS ERP system for PT. XYZ. To determine which modules and applications, the authors conducted observations and interviews on PT. XYZ. From the observation and interview, then the results are modeled into business processes so we can find the data that exist on the PT. XYZ. From the identification of business processes and data, we can list what modules and applications from IFS required by PT. XYZ to implement ERP systems. Previous research has indicated that an ERP system meets only 80% of the company's functional requirements [7].

3. Business Process and Data Identification

To find ERP software modules what is needed by PT. XYZ, the authors conducted observation and interviews of main business processes running in PT. XYZ. From the results of the observation and interviews, obtained main business processes from PT. XYZ as in Figure 2 and Figure 3.

Based on business processes that have been described, the data obtained can be seen in Table 1.

TABLE I. DATA EXAMPLE IN PT. XYZ

Data	Example
Basic Data	• COA, Payment Term, Tax Code • Delivery Condition Code • etc
Master Data	• Material Code • Material Brand • Supplier • Customer • etc
Transaction Data	• PR/RO • PO • MRR • Invoice • etc

4. ERP System Modules

Based on the main business processes illustrated in Figure 2 and Figure 3, then requirements to apply the result to implement IFS as follows:

A. The requirements for the Cross-Functional Component including:

1) Accounting Rules : It's needed to automate accounting model that can handle the activities of companies, especially financial.

2) Project Management : according to the core business, namely in the field of construction, the required project management to support for all stages of a project life cycle, from initiation and planning to project execution and completion. By linking it to financial system, its can analyze actual costs and revenue throughout the project. It can used the project portal to monitor the progress of a project or track costs, hours, and per formance.

3) Quality Management : it's used as tool for proactive quality management, from proactive decision making to failure prevention. It supports the entire production process, enabling to control parts in distribution, and inventory locations.

4) Project Reporting : to report all the progress project (every steps from the begining until the end of the project)

5) Document Management : It handles workflows, documents, drawings and includes templates, version and release management, and support for invoice scanning (OCR) and end lining.

B. The requirements of application modules on IFS ERP system including:

1) IFS Financial : it streamlines accounting process, enabling to strengthen controls at all levels of the organization. The applications that are used in IFS Financial module include: Budget

management, Cash Flow, Accounts Payable, Accounts Receivable, Fixed Assets, Consolidated Accounts, General Ledger.

2) IFS Distribution : It gives bottom-line results by improving demand planning, minimizing inventory, enhancing customer service, and reducing order-to-delivery time. The applications that are used in IFS Distribution module include : Invoicing, Purchasing, Inventory.

3) IFS Engineering : It helps to improve product quality and reduce time-to-market. The applications that are used in IFS Engineering module include : Project Delivery, Engineering Change Management, PDM Configuration

4) IFS Sales and Services : The application that is used of this module is the Sales Contract Management with the aim to help the marketing department in making the contract with the clients.

5) IFS Human Resources : the use of the applications on IFS Human Resources module is as support systems. The applications are Recruitment, Expense Management, Time and Attendance, Payroll Administration.

5. Conclusion

The conclusions in the above discussion are:

1. ERP is needed for the modernization of a company to improve performance and compete with other companies.
2. ERP can be implemented in various types of companies or agencies that have business processes. In this article was taken a company engaged in the field of construction and mining as an example.
3. In determining requirements the modules and applications on ERP implementation at a company really needs the business model of the company which has been running.
4. The main business processes in a company will determine the needs of applications in ERP implementations, and it also determine the need for supporting applications.
5. A research about implementation challenges during ERP systems implementation processes in PT. XYZ can be done.

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Figure Caption

Figure 1. IFS Application

Figure 2. Business Process PT. XYZ

Figure 3. Continuation of Business Process PT. XYZ

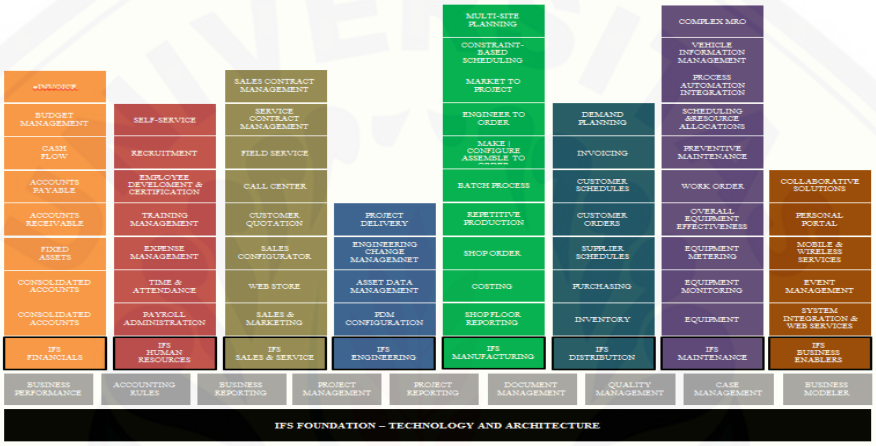

Figure 1

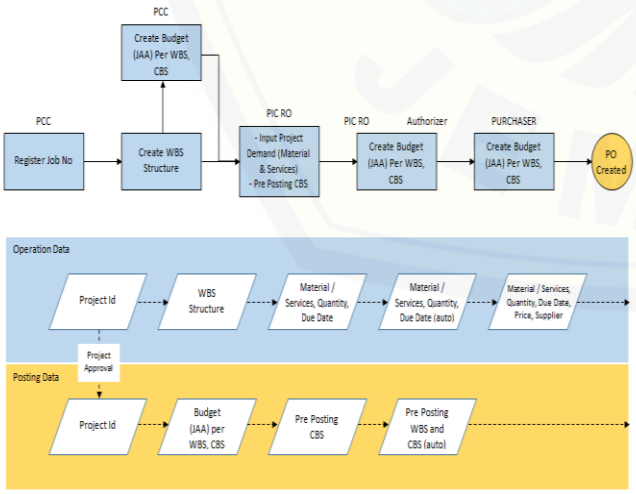

Figure 2

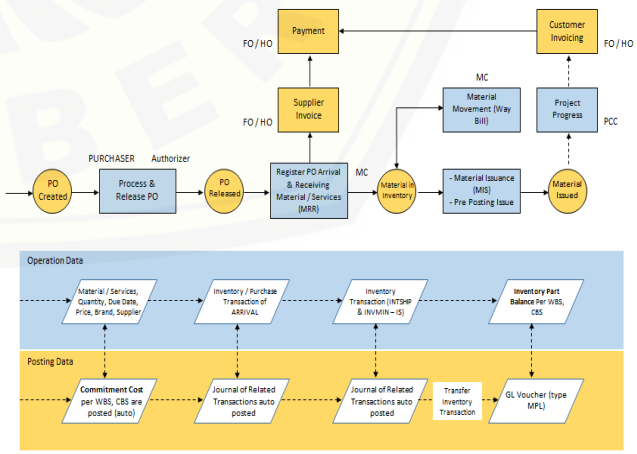

Figure 3