DESIGNİNG ARCHITECTURE TECHNOLOGY USING TOGAF METHOD IN ALUMINUM FOIL MANUFACTURER

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Abstract- The development of information system technology has been used in the fields of education, health, employment, corporate and government. The technology used must be updated and adjusted to the processes that should be in their respective fields, discussing about the adjustment of technology in various fields. PT. Bumi Poly Imas Industries (BPII) is a manufacturing company engaged in producing aluminum foil and rotogravure products, PT. BPII itself has applied information system technology using applications namely Accurate, Solution and Payroll which are used to help warehousing, financial and payroll performance. The application is still not enough to help the work process at PT. BPII, because some work processes are still done manually. Thus, the application of information system technology that is tailored to the needs in the company's business processes. By observing the company and interviewing, it is assisted by the Open Group Architecture Framework (TOGAF) method. Selected as the method used for this writing because, TOGAF can help in analyzing the needs of the company and has a good method in helping develop the Corporate Architecture. The final result in this research is a form of technology architecture model in the form of network changes used by companies and of course in line with the company's business processes.

Keywords- *information system technology, TOGAF, corporate architecture, aluminium foil*

INTRODUCTION

The use of information technology in life continues to grow rapidly [1]. Businesses that integrate with Information Technology have become major information management concerns since the role of information systems in organizations is emphasized. The need to make business harmony with information systems today is unquestionable because it is considered as one of the most important problems of information systems. The harmony of a business with Information Technology must be among the main concerns of organizations, because information systems play an important role in business strategy: they facilitate the success of business strategies. This connection shows the importance of alignment between business and information systems [2]. Businesses that are developing from special regions to global. With globalization, this is causing rapid changes in organizations and in their structures. Business is now also focused and deeper for the utilization of Information Systems [3]. To run a business professionally the company must design facilities, services and resources in a

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globally distributed environment. This creates a pressure on the company to avoid duplication of data and experience overlap, by providing the organization needs to scientifically design the company and manage it [4]. With enterprise architecture, it can provide an overview of the appearance of interconnected parts and harmonious relational steps [5]. Enterprise Architecture Preparation can be one of the solutions in making good planning. The use of a good EA can create harmony between business needs of organizations with information systems technology. The ability to provide services that are well integrated and economical is the reason why the use of EA is very relevant and needed in an organization [6]. Enterprise architecture exists as a method for aligning the relationship between business processes with technological resources and also as an innovative way to rethink the scope of business processes [7].

TOGAF is the most interesting framework available for producing a blueprint and having a perspective. The open Group Architecture Framework (TOGAF) is a framework for designing enterprise architecture, which provides an approach to design, plan, implement, and manage a company's information technology architecture [8]. The use of TOGAF to analyze the overall business architecture, with the advantages of using TOGAF is flexibility and open source [9]. In this research, it will be discussed how to use The Open Group Architecture Framework (TOGAF) in designing Technology Architecture at PT. BPII thus obtained a Technology Architecture design that meets the needs of business processes that are in line with the vision and mission of PT. BPII.

LITERATURE REVIEW

The existence of globalization drives many industries, manufacturing is an industry that operates machinery for the production process. But, for now the business that manufactures pump products is still a lot of problems inside. One problem is because business processes are not yet fully supported by the IS / IT department. Some processes are manual, the system is still not integrated with each other, overlapping positions, etc. Therefore, the manufacturing industry requires an updated enterprise architecture design so that business strategies and objectives can be achieved. By choosing the Open Group Architecture Framework (TOGAF) to assist in the design of EA, it is expected that the results of the research will be in the form of a proposed TOGAF model that makes harmony between business strategy and SI / IT. Also integrates all systems and stakeholders that support business activities to achieve business goals so that it will be more optimal in operations [10].

The technology architecture represents the computing equipment that supports applications for company operations. Its capabilities are complex because, TA manages communications, networks, provides technical support and various services such as platforms, integration and monitoring EA [11]. Enterprise architecture supports business and technology development to advance. That includes all aspects of EA life cycle planning for the company understanding the project, analyzing business requirements, system design, system evolution, and continuous improvement [12]. Lean Manufacturing is described as a production approach that is directed at identifying value added processes from the customer's scope and to allow the flow of these processes to attract customers through the organization. The main thrust of lean manufacturing is creating an efficient process flow to create finished products according to the needs of the customer's pace with little or no waste [13]. TOGAF is an EA framework for designing, develop, evaluate, and build companies so they have a flexible architecture which is consistent with the needs and business goals. TOGAF is a standard already recognized by the business to build

company architecture. The TOGAF framework can produce models and blueprint in developing information system that integrates performance plans that will meet the needs of the organization [14].

METHODOLOGY

In this study using the TOGAF method, the following stages in the study:
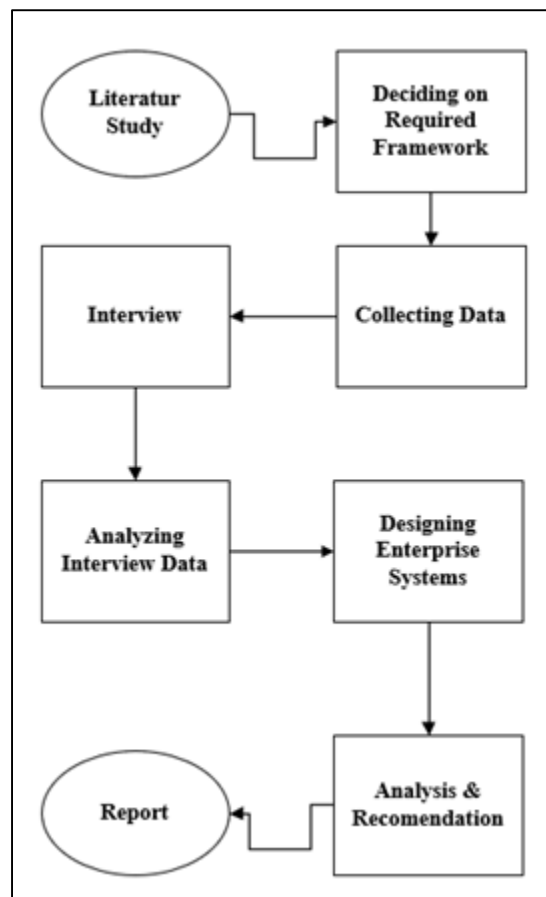

Fig.1 Research Steps [15].

Collection of data from the library as a reference that comes from research journals and other information related to this research. Deciding on Required Framework: analysis using TOGAF which is general framework for use in a variety of environments that provides a flexible content framework to support a general architecture. The key to TOGAF is ADM (Architectural Development Method), which provides a specific description for the company's architecture development process. ADM is an important feature that allows companies to define business needs and build specific architectures to meet those needs. ADM consists of the stages needed in building a company architecture, and the stages that used in this research: Initial Phase, Framework and Principles containing 5 phases (Phase A: Architectural Vision, Phase B: Business Architecture, Phase C: Information Systems, Phase D: Technology Architecture and Phase E: Opportunities and Solutions). Data collection in this study was carried out by coming directly to PT. BPII, and meet company employees. Interview, when coming to the company and meeting with employees, interviews were conducted about business processes, the role of divisions in the

company, people taking roles in the company, etc. Analyzing Interview Data, analysis of the data obtained from interviews with company employees. Designing Enterprise System, make design drawings from architecture technology that will be proposed to the company. Analysis & Recommendations, analyze what computer devices are needed in the development of technological architecture designs and propose them to the company.

RESULT AND DISCUSSION

Preliminary Phase - This stage is carried out to produce architectural principles and to convince leaders and employees involved in the use of Information Technology in organizations. These principles are obtained through assessment analysis and interviews with PT. BPII, the principles are as follows: 1) Architecture designed and developed must support the company's business processes and the company's vision and mission. 2) The architecture developed must be safe and well protected. 3) Applications must be well integrated. 4) Access to data can be done more easily. 5) The application developed is easy to understand. 6) The application speeds up business processes.

Phase A: Architecture Vision - The scope of this phase includes the vision, mission, business goals, and products produced by the company. Vision of PT. Bumi Poly Imas Industries is a world class one stop shopping company. While the company's mission is as follows: Provide value-added solutions for business partners, develop a sustainable business, guarantee professionalism. Phase B: Business Architecture - The scope of the discussion in this phase covers the situation of business enterprises. Analysis of the business situation of PT. BPII will be conducted using an evaluation of strengths, weaknesses, opportunities and threats (SWOT) as shown in the following Table. 1.

Table. 1 SWOT Analysis.

SWOT Analysis	Strengths	Weakness
	• Has a product that is trusted by clients •Have adequate heavy equipment to support the work process of production	•Not all work processes are touched by information system technology •Using company data in a number of separate applications, so that data search becomes less effective •Work monitoring for sales / marketing does not yet exist
Opportunities •Cooperating with many suppliers • Work with many distributors	•Monitor production results regularly with product quality control	• Market the product, simplifying business processes with clients by applying more than information technology
Threat	• See foreign market prices	• Implement a system to choose the right supplier, which affects the quality of the

• Product price competition • Superior technology owned by competitors • Selection of the right material suppliers	•Promote excellence that is not shared by many competitors.	product. So, with the prices given to clients, able to provide quality and satisfying products.

Phase C: Information Systems Architecture - The scope of this phase is about applications that will be recommended to PT. BPII. Inventory Application	Helps the production department when they want to request materials from the warehouse needed for the production process, can be in the form of staples or auxiliary materials. With the use of this application, there is no need to use paper anymore, minimizing data loss while also making it easier to do stock taking.
Website E-Commerce	Developing a website that is owned by PT. BPII is becoming a media so that the company is increasingly known by the public and the company is also able to know what is needed by the community so that it can provide the best for the community.
Employee leave application	Through this application workers can apply for leave to the company more effectively and efficiently.
Sales Monitoring Application	To monitor where sales are at once check sales performance and sales orders.
DSS Manufacturer	Help determine producers for raw materials and supporting materials in terms of price, quality and service.
Website For Hiring New Employees	Website for hiring new employees who can help PT. BPII in finding employee candidates

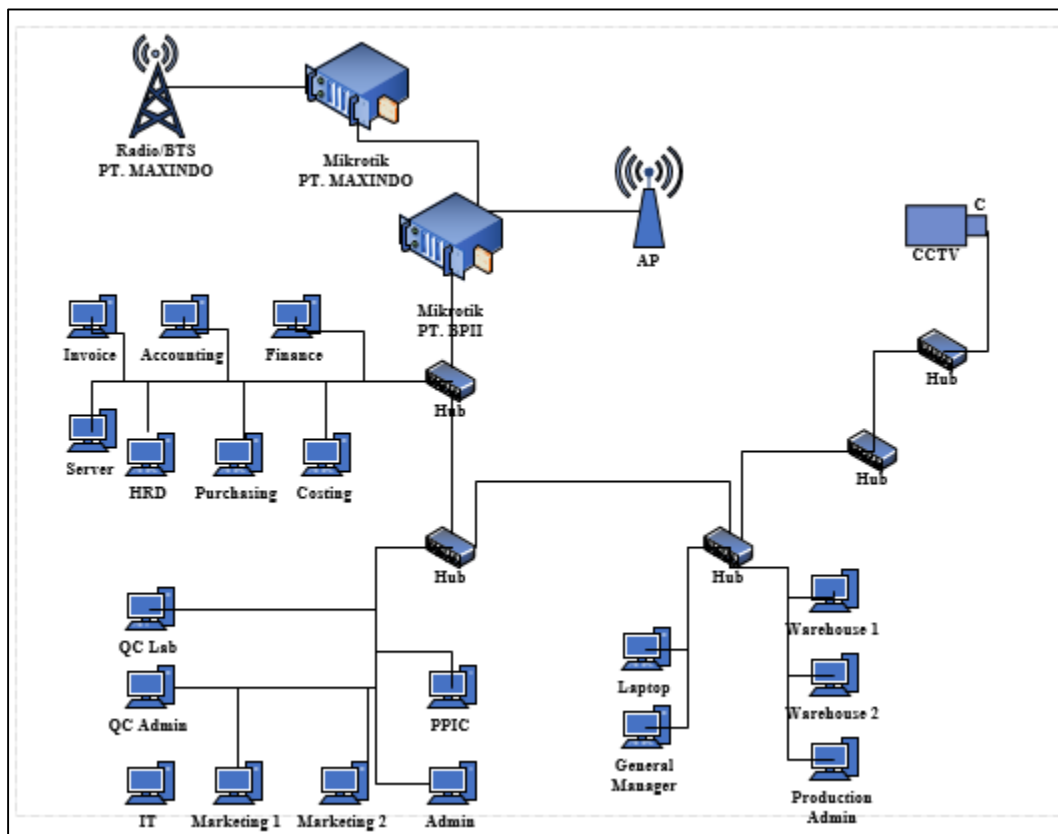Phase D: Technology Architecture

Fig.2 Architecture Design Technology Company.

The picture above is a technological architecture design from the internal network at PT. BPII enough adequate where there are radio towers, microphones, wireless, several hubs, servers, and several computers. Next, below will be displayed drawings of architectural design technologies that are proposed to the company.
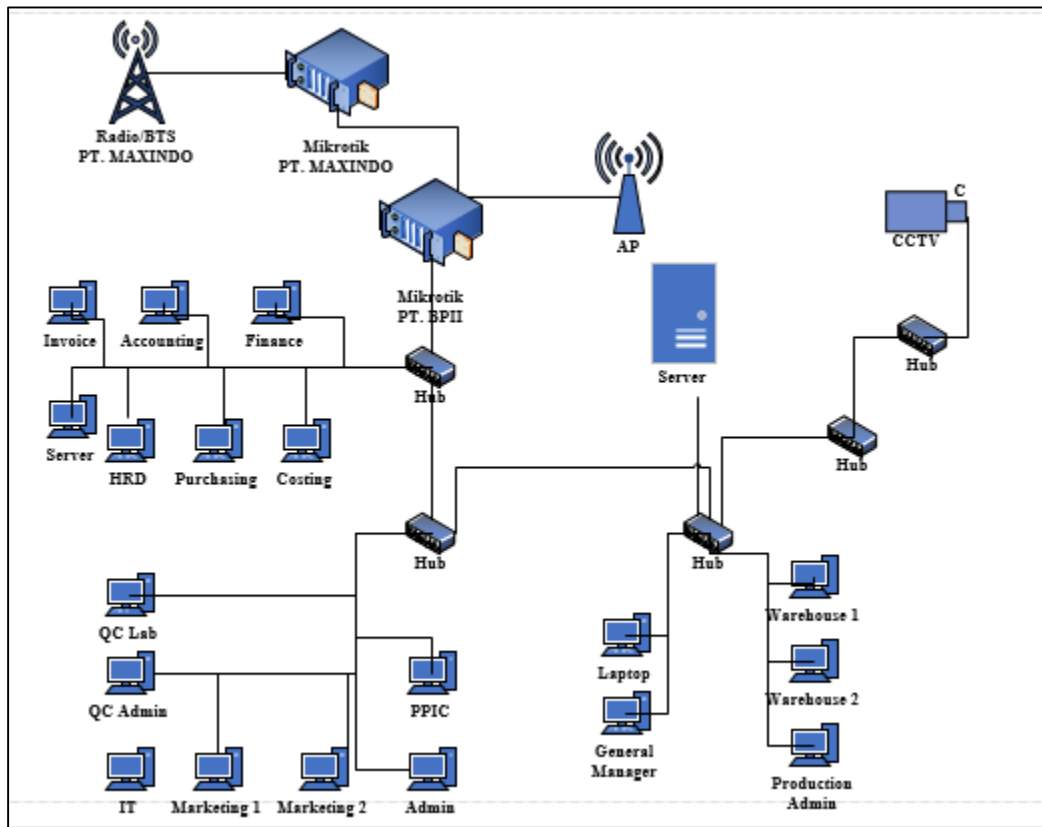
Fig.3 Proposed Architectural Technology Design.

Based on the picture above actually the proposed technology architecture design does not make major changes to the technology architecture that has been or is used in companies, but with the proposed technology architecture design it is expected that work processes and access to data within PT. BPII can be faster.

Phase E: Opportunities and Solutions - At this stage, the system and application will be discussed has an important role in supporting business strategies and information technology. Operation of the application must be able to manage various units and processes inside company, as well as providing solutions for the long term the company can adjust to existing developments.

Table. 3 Opportunities and Solutions.

Interface	Presentation	Network	Application	Database
Sales Monitoring Application	Smartphone	Internet and GPS	Java	DB for Sales Monitoring Application

DSS Supplier	Desktop	Internet and LAN	Visual Studio	DB for DSS Supplier
Website For Hiring New Employees	Web Browser	Internet and LAN	Web Server and PHP	DB for Hiring New Employee
Inventory Application	Desktop	Internet and LAN	Visual Studio	DB for Inventory Application
Website E-Commerce	Web Browser	Internet and LAN	Web Server and PHP	DB for E-Commerce
Employee Leave Application	Desktop	Internet and LAN	Visual Studio	DB for Employee Leave Application

Technology architecture has an important role in supporting business strategy, because of the ease of accessing data, managing various divisions and processes within the company. Technological architecture provide-a long-term design for how a company can adapt with the development of time as the progress of IS / IT so that it runs in harmony and can be further improved. Based on the results of the analysis of the data obtained, there is will be a technology architecture proposal as follows:

1. In the new recruitment website, it will use the web browser requires internet and LAN to connect. This application will be based on a web server using PHP and will have a database for data storage.
2. In the Sales monitoring application, he will use the smartphone requires internet and GPS to connect. This application will use java and will have a database for data storage.
3. In the Leave application, it will use that desktop requires internet and LAN to connect. This application will be based on a web server using visual studio and .exe will also have a database for data storage.
4. In the DSS Supplier application, it will use that desktop requires internet and LAN to connect. This application will be based on a web server using visual studio and .exe will also have a database for data storage.
5. In the Inventory Application, it will use a desktop that requires internet and LAN to connect. This The application will use Visual Studio and .exe will also have a database for data storage.
6. In the E-Commerce website, it will use the web browser requires internet and LAN to connect. This application will be based on a web server using PHP and will have a database for data storage.
7.

CONCLUSION

Based on the results of the discussion on the research it can be concluded that in its operations, PT. This BPII has a problem in business and is still not fully a work process supported by information system technology. This research aims to design and building the right technology architecture so that business processes within the company will be perform better in the future by using TOGAF framework.

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