ANALYSIS AND DESIGN ENTERPRISE ARCHITECTURE USING THE OPEN GROUP ARCHITECTURE FRAMEWORK (TOGAF) ADM IN PROJECT DIVISIONS PT. INTI

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Abstract

PT. INTI is a state-owned company which engaged in telecommunication infrastructure since 1974. But starting 2009, PT. INTI began to expand its business focus became not only the telecommunications infrastructure, but also engineering solutions and product development. all business focus will work well if there is support from all the main functions and support functions. One of its functions is a function of the project. The project function is a function that is responsible for the project were obtained from the client. PT. INTI is having plan to change their business focus back to manufacture business. therefore, project functions also need to add new business process in way to support business changes. Dashboard Project monitoring can be one of new activities to support manufacture business from project function. In order to carry those new business activity, need to have an application that support those activities. Enterprise Architecture method that use to analyze the baseline EA and design target EA is TOGAF ADM which contain 9 phases. In this research, phases that will implemented starting from preliminary phase until opportunity and solution phase. This research resulted in a target enterprise architecture design with new application recommendation named Sciforma Project Performance monitoring which use to monitor all project that still progressed by PT. INTI and a little change on Local Area Network (LAN) infrastructure. Then all enterprise architecture design will summarize to IT Roadmap which contain timeline to implement all new recommendation.

Keywords: Enterprise Architecture, TOGAF ADM, Project Performance Management, Project Management

1. Preface

These days are the era for technology being one of human primary needs. Most of enterprise also really relay their business process to information technology (IT) because IT serves every business problem solution. [1]. The condition that mention above become a one of trigger to create new business by using available technology [2] and cannot be denied business competition become stiffer. Information Technology (IT) have a great advantage in the development of the business of an enterprise, so it is necessary to develop a focused and scalable in order to support the business strategy that is in line with long-term goals, medium and short-term to be achieved by the company. [3]. However, to apply the technology to a company is not as easy as planned. Oftentimes the application of technology would bring fatal losses for their ineffectiveness application and not aligned between businesses with the technology applied. One way is to design the integration of technology on business with enterprise architecture (EA). With EA, the Company can optimize and develop the business aspects (goals, vision, mission and business strategy, organizational structure and business activities), aspects of information systems (data and applications) and existing technologies can be integrated to support the implementation of business strategy [4]. Along with technology usage in process business, company need to strategize their IT to align with the business. Therefore, high level management have to design an IT Masterplan. Project Management could be one of main function in every telecommunication infrastructure company and its important to build an IT Masterplan focus to this function. This research will formulate problems into:

a. How to design IT Master plan PT. INTI using enterprise architecture vision on stage architecture, business architecture, information systems architecture, and technology architecture framework TOGAF ADM uses for parts of project management?
b. How to design IT Master Plan that can help implement parts of project management work more effectively and efficiently in accordance with the previously planned?

The general objective of this study was to produce a blue print or IT Roadmap that can be used by the Project Management section. The specific objectives of this study are:

a. Designing enterprise architecture PT. INTI stage vision architecture, business architecture, information systems architecture, and technology architecture framework TOGAF ADM uses for parts of Project Management
b. designing project management work by creating strategies workflow project implementation to be efficient in time, resources and quality of the projects are carried out effectively that can satisfy the client.

2. Literature Review

2.1 The Open Group Architecture Framework (TOGAF) ADM

TOGAF ADM is a generic method contains a set of activities that are used to model the development of enterprise architecture. This method can also be used as a guide or a tool for planning, designing, developing and implementing information systems architecture for the organization [5]. In TOGAF ADM has principles that can be used as a yardstick in assessing the success of developing the EA by the organization. Such principles include the principle of the Enterprise, the principle of Information Technology (IT) and Principles of Architecture.

2.2 Project Management

Project Management is the study of how to plan, organize, mobilize and control of existing resources to achieve specific goals and achieving specific success criteria. Project is a temporary activity that is carried out to produce a product, service or result that is unique to the determination of a beginning and end (usually constrained by time, resources and financial) to achieve a specific and unique objective and usually resulting in added value or change. There are five stages of the main activities undertaken in the project life cycle, namely: Initiation Phase, The Plan and Design, Execution Phase (Implementation of the project and / or Construction, Stage Monitoring and Control System and Phase Closure

3. Research Methodology

3.1 Conceptual Model

The research methodology will be divided into three process which are :

1. Input (Input)

There are three data be input in this study, that the existing business processes associated with the function of Project Management, Strategic Planning PT. INTI, IT Master Plan document existing and implemented business process form the initial reference made process flow targets so knowing which processes need to be improved. Renstra PT. INTI and existing IT Master Plan is required to be a starting material as well as mapping SWOT analysis and manufacture of new IT Master Plan.

2. Process

To change a data into the output (output), the process required to change it. The purpose of this study was to design using the enterprise architecture framework TOGAF ADM that produces IT Blueprint, process that occurs is in the process of designing enterprise architecture framework TOGAF ADM use you. The process was first done is to change the three existing business processes input in the form of Project Management function, Renstra PT. INTI and existing IT Master Plan into business information that can be used to perform the second process, the process of designing Business Architecture (BA). Other processes, namely the process of designing Information Systems Architecture and Technology Architecture (TA).

3. Output (Output)

Once the data is processed, there is output (output) of the process. Each process has its respective outputs that shape the design of enterprise architecture. The output of this research is BA Blueprint Data Architecture, Application Architecture Blueprint and TA that would later become an IT Master Plan

3.2 Research Systematic

There are four stages in the systematic research, namely the planning stage, the stage of the study and identification, as well as the design stage of the last stage of conclusion.

1. Planning Phase

Planning phase is the initial phase undertaken in conducting this study, in which define all the preparations related to the research. This study begins with a determination of formulation of the problem, then proceed with the research goal setting and problem definition, further stages of the study of literature and field research conducted at PT. INTI. In this research framework used is TOGAF ADM in five main phases, namely the Business Architecture, Data architecture, Application Architecture, Technology Architecture and Migration Planning to create a draft Blueprint Enterprise Architecture.

2. Phase Studies and Identification

At this stage of the identification process will be conducted research input in the form of identification the vision and mission of PT. INTI, identification of business strategies contained in the organization's strategic plan, identification of implementation must be done on PT. INTI. In addition to the identification process, the process of identifying the target architecture will also be made that the initial process. Then proceed with analyzing the Gap Analysis then determine the components Road map. After that then followed by analyzing the Risk Analysis.

3. Design Phase

In the design phase activities conducted are designing Business Architecture, Information System Architecture, Technology Architecture and Planning Migration. After everything is done then there will be the validation and verification of design that has been done. If the validation and verification of declared completed or succeeded, the activities will be continued in the next phase

4. Reporting Phase

In the reporting phase activities undertaken will produce documents such as business architecture blueprint, blueprint of data architecture, application architecture blueprint, blueprint technology architecture, as guidelines for the implementation and development of IT Master Plan on PT. INTI.

5. Phase Conclusions and Recommendations

The last phase in this study is a phase conclusions and suggestions. At the conclusion containing conclusions from the entire blueprint architecture that has been done in this study. On the advice section contains suggestions are provided to assist organizations in assessing the performance.

4. Target Architecture

4.1 Target Value Chain

Based on Value Chain Diagram figure 1 below on the primary activities, project planning and controlling become one of primary activities need to fulfill by all elements related to function. Furthermore, by having new business focus, Project Planning and Controlling need to be focused on Performance controlling by having new data and application that support Project Performance Management.

Figure 1 Project Based Value Chain Diagram

4.2 Target Conceptual Data Diagram

On Figure 2 below shows the relation between entities in Project Performance Report Application. Project Health Status entity, Project Profit Analysis and Project Budget Expenditure Analysis entities as the main process in these application are connected to entities that taken from Enterprise Resources Planning (ERP) surrounded by red rectangles and support entities. In this target conceptual data diagram will not show the existing Conceptual Data Diagram.

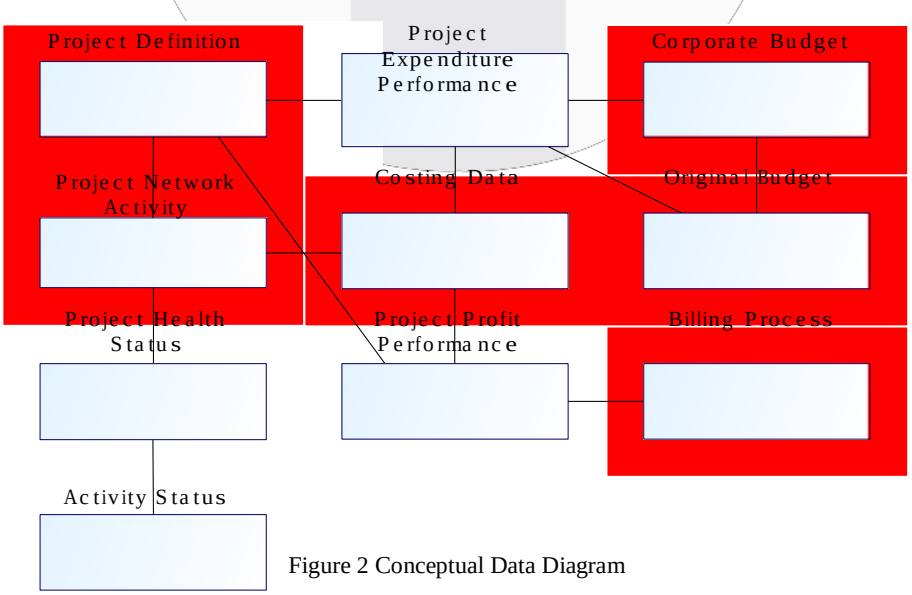

Figure 2 Conceptual Data Diagram

4.3 Target Application Communication Diagram

Figure 3 shows how all application that project divisions use communicate and connects in order to run their process. The diagram below has been added with new target application and it signed with red box. It also shows every application type area with different color boxes.

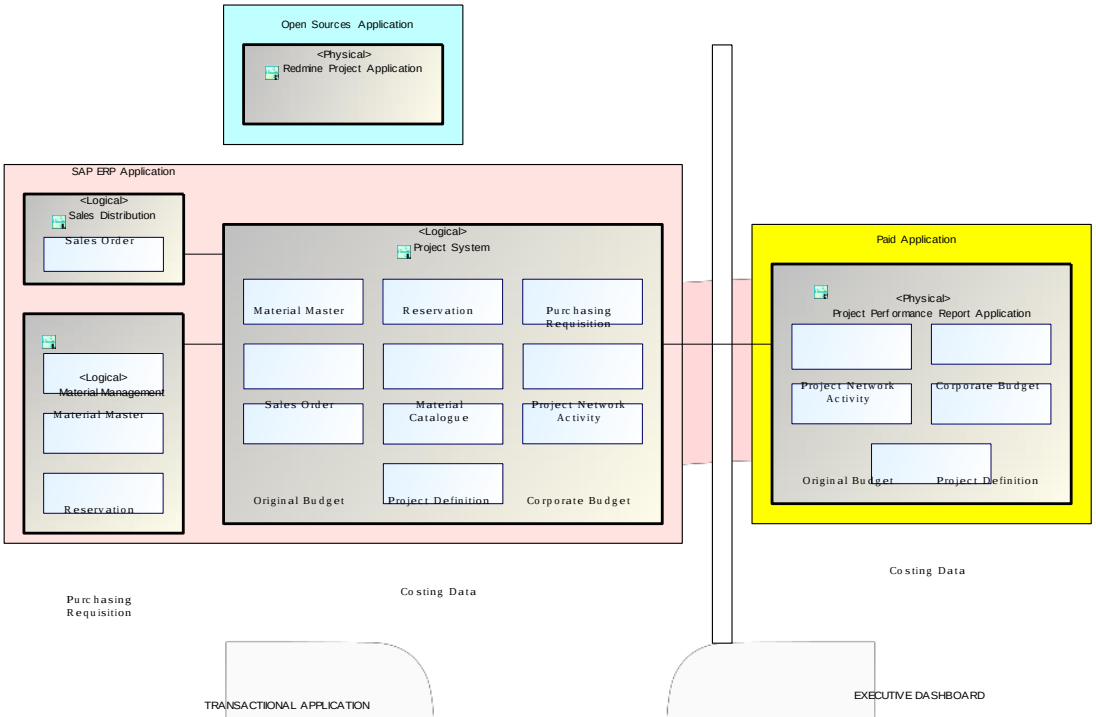

Figure 3 Target Application Communication Diagram

4.4 Target LAN Infrastructure

Mature infrastructure as pictured on Figure 4 is needed in every corporation to support all their business processes. Every used hardware has to meet corporate requirements. PT. INTI LAN infrastructure is distributed to GKP. Figure V.26 will picture the LAN Infrastructure topology of PT. INTI. Compare to Figure IV.31 (Existing LAN Infrastructure of PT. INTI), there are a lot of changes in these target LAN Infrastructure. Firewall which has function to catch and filter all external package will be helped by Main Gateway to catch all external package, then it will be transfer to firewall for filtering. In the existing condition LAN infrastructure, DMZ Area are placed after the firewall. But it causes ineffectiveness because every server need to have Public IP and it should be manually set in every server. But if DMZ Area placed after firewall and connected to DMZ Router, all server only need one Private IP. DMZ Area also will be facilitated with DMZ Switch which taken from core Switch and its backup to save router utilization for server. SAP Server were used to be apart from DMZ Area and connected to core Backup Router will be moved to DMZ area to save router utilization as well. DMZ Router and its backup are also connected to GKP distribution switch to cover all GKP area for internet. As the target application for project divisions is added, so Web Host server as paid application server.

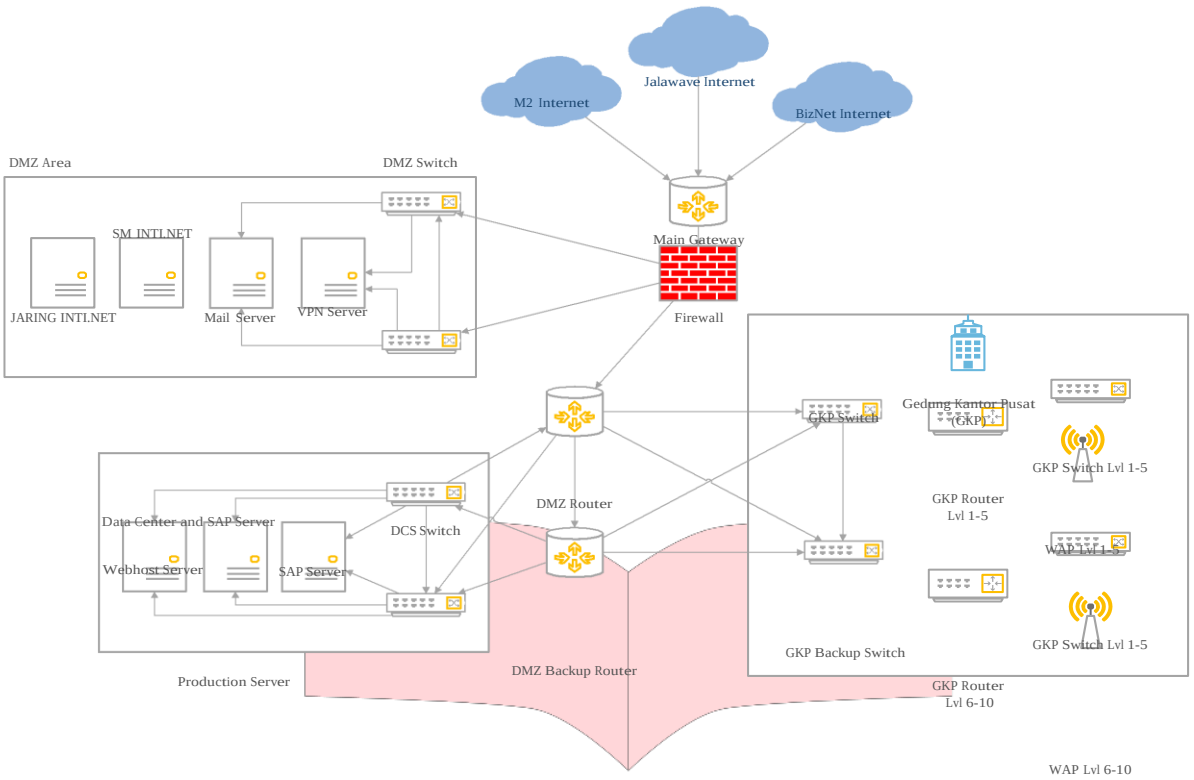

Figure 4 Target LAN Infrastructure PT. INTI

4.5 IT Roadmap

IT Roadmap PT. INTI for 2017 until 2019 in shows in Figure 5 are only focus to Project divisions. For 2019 Project divisions still focusing on adding more value in their business process by using either existing or target application. The target application mostly uses non-SAP based software for supporting project divisions activities. For network infrastructure there will be some changes that maybe not directly affected to project performance.

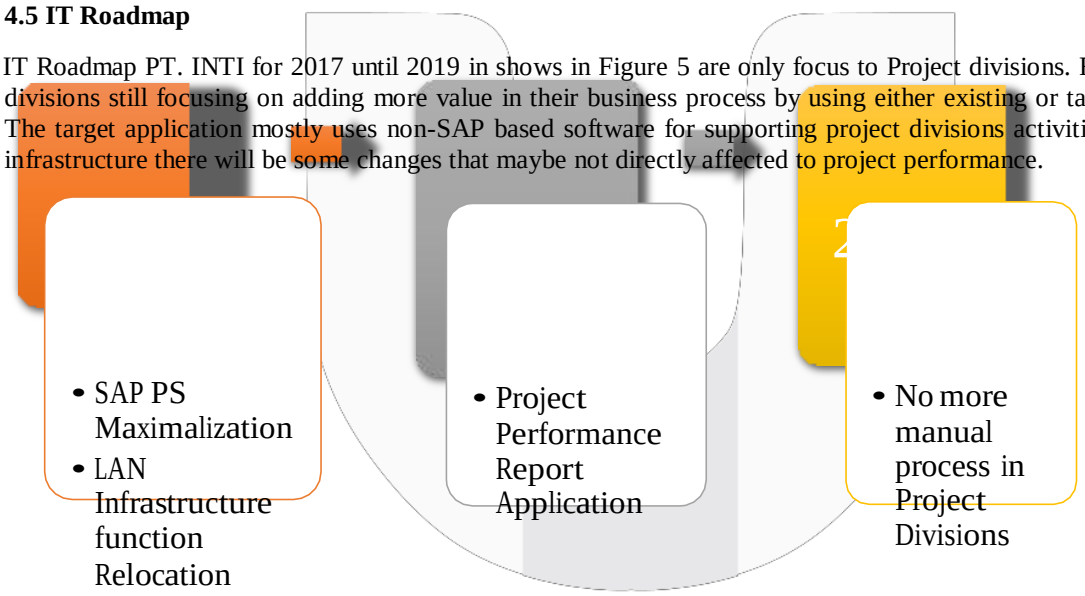

Figure 5 IT Roadmap from 2017-2019

First (1st) Phase Development - 2017

In 2017 is expected to do some physical technology component function relocation in accordance with the target LAN Infrastructure has recommended. Core Switch and Backup core Switch which previously connected directly with the firewall, in this phase will be converted into DMZ Switch and its Backup Switch that will connect the entire server and data center that previously connected directly to the DMZ firewall into the DMZ Router and its Backup.

There will be neither change or new application for project divisions. There is may be some SAP Project Function have not optimized by Project Divisions in PT. INTI can be use in these year

Second (2nd) Phase Development – 2018

As seen on Target Application and Data Architecture on sub chapter V.3 and V.4, Project Divisions will implement new application which could help them monitor all projects performance via with table view or diagram view. This application named Project Performance report application can connect to SAP PS that the divisions has been use so

there will be a possible data exchange to support each application process. It will be hosted on Production server which usually use for mostly paid non-SAP Application.

Third (3rd) Phase Development – 2019

There will be no significant changes or new in this year both in infrastructure and application. But Project Division hopes there will be Project Portfolio Management which handled every documentation and report in one application. So there will be no more single manual process left in Project divisions.

5. Conclusion and Suggestion

Conclusion that can be taken from this research and thesis process are:

1. The reduction of project division previously broken into two divisions that previously comprised of three divisions. Work are each project division is different. From per area of the project into Product Business project
2. The addition of data entities satisfying the needs of the division project related to performance reporting projects that can be supported by the availability of applications in accordance with the new data entities that exist
3. The change of LAN infrastructure as well as the transfer of some functions of the hardware to make the performance of network infrastructure becomes more efficient and effective
4. Establishment of an IT Roadmap for 2017 to 2019 for the project division at PT. INTI referring to the target architecture that has been recommend

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