DESIGN ENTERPRISE SYSTEMS USING ENTERPRISE ARCHITECTURE PLANNING (CASE STUDY: DIRECTORATE OF COMMUNITY GUIDANCE AND CHILD ALLEVIATION – DIRECTORATE GENERAL OF CORRECTIONS)

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Abstract

Enterprise Architecture Planning (EAP) as one method or the frame of reference for building an information architecture oriented to the needs of businesses in which consists of data architecture, applications and technology and implementation of the architecture that has been created to support the business activities to achieve organizational mission. EAP describes the architecture of data and technology needed to support organizational business. Many IS development have failed because of the development needs of the IS are based on specific needs without any advance planning by management in implementing an integrated information system development Directorate of Community Guidance and Child Alleviation, as one of social organization, does not escape from the need to define business requirements and information architecture. Modeling information architecture for the organization need for one step to support business process in organization. Modeling architecture including defining the data architecture, defining application architecture, defining the technology architecture, and mapping creation or implementation of the roadmap plan

Keyword: Enterprise Architecture, Enterprise Architecture Planning (EAP), Information System, Road Map

Introduction

Utilization of good information and communication technology will create opportunities on information and technology development, that will give impact on the development of quality improvement of resources.

The Directorate of Community Guidance and Child Alleviation – Directorate General of Corrections strives to realize the objectives of the penitentiary system. Directorate of Community Guidance and Child Alleviation has the duty to carry out the preparation of formulation and policy implementation, the provision of technical guidance and evaluation in the field of Directorate of Community Guidance and Child Alleviation appropriate with technical policy stated by the Directorate General of Corrections.

Research Methods

2.1 Enterprise Architecture

Enterprise is a number of people who are set for a real purpose to produce a product or provide a service [1]. Enterprise may also be defined as whole corporations as a unity, divisions of corporations, government organizations, single departments, or networks of organizations which geographically have different areas then far apart and interconnected by a common goal (2).

The second word of the term Enterprise architecture is architecture. Architecture is the design or various structure types of the design physically or conceptually, real or unreal. If these two words are combined, then some definitions will come. [3]

The definition of enterprise architecture is the process of translating on business vision and strategy into an enterprise that is changing effectively by acting, communicating, and refining the key of principles and models which describe the enterprise future and drive changes [7].

2.2 Enterprise Architecture Planing

Enterprise Architecture Planning (EAP) is the process of defining the architecture and the use of information in business support and plan to implement EAP. EAP is a methodology which is developed to build enterprise architecture and becomes part of the information system planning process that can achieve system of mission and vision over the long term [6].

EAP adopts two rows and three columns of the Zachman Framework as described in Figure 2.1 and produces blue-print from high-level application data and technologies. EAP is a methodology based on business support and data support, because:

1. A stable business model which is free from organizational boundaries, systems and procedures is the foundation for enterprise architecture
2. The dependence on the data determines series of implementation of application system

	Data *What*	Function *How*	Network *Where*
Scope (contextual) Planner	List of things important of the business	List of core business process	List of business locations
Business Model (conceptual) Owner	Conceptual data/semantic model	Business process model	Logistic Network

Figure 2.1 EAP

EAP focuses on the definition of data architecture, application architecture, technology architecture for whole enterprise not the design for specific purpose
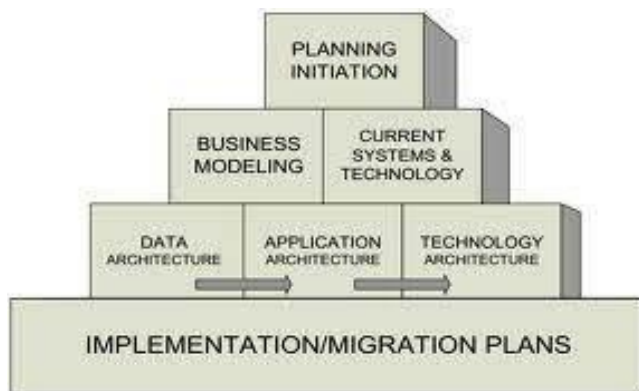

Figure 2.2 EAP

3.   Value Chain

Value chain model used to highlight activities in business. Chain consists of a series of activities that create and build a value that can generate value-added margins for organization. Figure 2.3 shows the Porter's value chain of primary activities and support activities. [5]
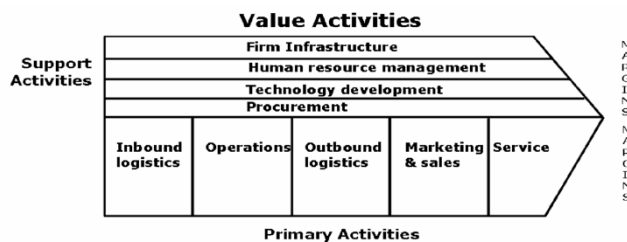
Figure 2.3 Value Chain

III Directorate of Community Guidance and Child Alleviation

The Directorate of Community Guidance and Child Alleviation – Directorate General of Corrections strive to realize the objectives of the society system. In accordance with Ministerial Regulation of Ministry RI NO. M.HH-05.OT.01.01 year 2010 dated December 30, 2010 About the Organization and Working Procedures of the Ministry and Human Rights, Directorate of Community Guidance and Child Alleviation has the task of preparing the formulation and implementation of policies, providing technical guidance and evaluation in the field of community guidance and alleviation of children in accordance with the technical policy established by the Directorate General of Corrections

The vision of the Directorate of Community Guidance and Child Alleviation is "To be an accountable, transparent and professional institution supported by highly competent officers which are capable to apply the realization of community discipline".

The mission which is owned by Directorate of Community Guidance and Child Alleviation Children is as follow:

1. To maintain the orderly implementation of duties and community functions consistently by promoting respect for the law and human right.
2. Establish a professional institution based on accountability and transparency in the implementation of duties and community functions.
3. Develop the competence and potential of officer resources consistently and continuously.
4. Develop cooperation by optimizing stakeholder engagement

The business function that has been supported by applications is the data function for mature client. The applications are considered to be able to support a particular business function which might not support other business functions, because they are not connected to each other and have different platforms. The applications are divided into three parts:

1. Adult Client Application Data (SDP)
2. This application is an application that has a function as an application register for adult clients placed in each local run-line and automatically consolidates data by servers every month. This application includes client registers in the form of photos, fingerprints, legal cases, and client life history.
3. Application of Civil Servant Service (SIPK)
4. This application is an application that has a function to perform data collection for civil servants wich focused data on employee position and place of duty.
5. Bapas Application of Lapas (SIPBL)

This application is an application that has the function to recapitulate activities report data conducted by PK in Lapas or at Bapas in carrying out activities and information received by the Directorate which is stated not as personal data for each civil servant but as the overall report of the activities of Lapas or Bapas..

Design

4.1 Value Chain Organization

1. Primary Activities

   a) Adult Client Data Collection, in this process can be defined as an adult client's record of legal cases that has detention term and placement.
   b) Child Client Data Collection in this process can be defined as an child client's record of legal cases that has detention term and placement
   c) Giving Counseling for client is a process of providing guidance needed by clients and data collection that has been given by Pebimbing Kemasyrakatan (PK).

2. Support Activities

   a) Improving the Quality of Education and Services is a process of improving from PK based on the data set of each Lapas and the number of cases which occur lately.
   b) Employee management is a process of data collection for all civil servants.
   c) Management Policy and Guidance is the process of formulating a new policy in solving and improving services to clients and society

4.2 Data Architecture

The data architecture is an initialization that should be able to identify data that supports business functions as defined in the business model. In business modeling, if the using model of Value Chain Porter Modeling is done by Porter's value chain method, so it will show supporting activities in running organizational process.

Based on the value chain of Directorate of Community Guidance and Child Alleviation Children, there are several business entity to be identified:

   1. Adult Client Data Entity
   2. Child Client Data Entity
   3. Training and Guidance Counseling Entities
   4. Education and Service Quality Improvement Entities
   5. Employee Management Entity
   6. Policy Management and Guidance Entity

Tabel 4.1 Data Entity

Bussines Entity	Data Entity	
Adult Client Data Collection	1	Prison
	2	Biography of Adult Client
	3	Visitor of Adult Client
	4	Medical Record Of Adult Client
	5	Warrantor of Adult Client
	6	Law Case of Adult Client
	7	Period of Detention Adult Client
Child Client Data Collection	8	Child Prison
	9	Biography of Child Client
	10	Visitor of Child Client
	11	Medical Record Of Child Client
	12	Warrantor of Child Client
	13	Law Case Of Child Client

	14	Period Of Detention Child Client
Providing Counseling and Technical Guidance	15	Guidance
	16	Counseling
	17	Community Officer
Improving the Quality of Education and Services	18	Employee Skills
	19	Technical Education Employees
	20	Employee Education Evaluation
Employee Management	21	Curriculum Vitae
	22	Job History
	23	Technical Guidance
	24	Non Formal Education
Management of Policy and Guidance	25	Guidance in Prison
	26	Guidance In Court
	27	Client Policy
	28	Employee Policy

4.3 Application Architecture

The definition of application candidate using the four stage life cycle tool in order to determine the candidate list of applications will be needed to support business process at The Directorate of Community Guidance and Child Alleviation.

Table 4.2 Application Candidate

No	Apps	No	Candidate Apps
1	Adult Client Data Collection	1.1	Information System of Adult Prison
		1.2	Data Collection System of Adult Client
		1.3	Visitor Data System Of Adult Client
		1.4	Medical Record System of Adult Client
		1.5	Guarantee System of Adult Client
2	Child Client Data Collection	2.1	Information System of Child Prison
		2.2	Data Collection System of Child Client
		2.3	Visitor Data System Of Child Client
		2.4	Medical Record System of Child Client
		2.5	Guarantee System of Child Client
3	Counseling Of Client	3.1	Prison Education System
		3.2	Prison Guidance System
		3.3	Court Guidance System
4	Employee Management	4.1	Staffing System
		4.2	Employee Training Evaluation System
5	Improving the Quality of Education and Services	5.1	Centralized Bimtek System
		5.2	PK Exam System
		5.3	System of Counseling and Skills PK
6	Management of Policy and Guidance	6.1	Client Policy System
		6.2	Employee Policy System

After the process of data collection for application needs within the organization, then the research process may conclude the aplication needs by describing it into the application portofolio. The grup of applications will be based on:

1. The applications that have been identified above are based on the main activity and the support described by the value chain
2. Strategic applications required for future business success are included in the quadrant of strstegic application. Applications that support organizational operations are included into the key operational quadrant
3. Applications that are merely supportive are grouped in quadrant support application. Innovative applications that may increase the chances of future profit improvement and those innovative applications have not been proven so it will be included into the quadrant of high potential

Table 4.3 Application Portfolio

STRATEGIC APLICATION	HIGH POTENTIAL APPLICATION
Information System of Adult Prison Information System of Child Prison Guarantee System of Adult Client Guarantee System of Child Client Centralized Bimtek System PK Exam System	Medical Record System of Adult Client Medical Record System of Child Client Visitor Data System Of Adult Client Visitor Data System Of Child Client
Data Collection System of Adult Client Data Collection System of Child Client Prison Guidance System Court Guidance System Staffing System Prison Education System Employee Training Evaluation System	Counseling and Skills System of PK Client Policy System Employee Policy System
KEY OPERATIONAL APPLICATION	SUPPORT APPLICATION

4.5 Technology Architecture

All activities of the organization function are performed on one floor, the applications used in organizational units using the Internet or intranet network as a medium of communication (web-based). Placement of data and applications using the concept of client-server where applications and data are placed in one location and can be accessed by users from all parts using internet or intranet network with restrictions on permissions. Meanwhile, the monitoring of data traffic and applications will be the responsibility of the Information and Communication Directorate which is separated from the scope of the organization. The management of server functions is appropriated with server capabilities by separating the server functions as a network reseller with an application provider or data. The enterprise network forms a local network (LAN) and the Internet with TCP / IP protocol.
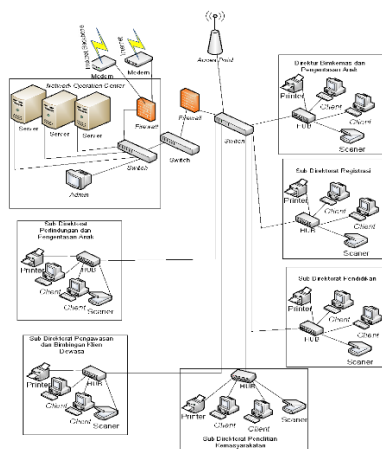

Figure 4.2 Technology Architecture

4.6 Application Development Plan

The relationship between the application and the data entity that the author has presented on the matrix of application and entity relationships is a result of application architecture that has benefits such as

1. Show data sharing in the application architecture
2. Can be used as a reference in creating a sequence of applications to be constructed using the principle of "application that creates data will be better to be created first before an application of using data".

Table 4.4 Road Map

No	Application System	Information
1	Data Collection System of Adult Client	Existing Development
2	Data Collection System of Child Client	New Development
3	Staffing System	Existing Development
4	Court Guidance System	New Development
5	Prison Guidance System	New Development
6	Prison Education System	New Development
7	Employee Training Evaluation System	New Development
8	Information System of Adult Prison	New Development
9	Information System of Child Prison	New Development
10	Guarantee System of Adult Client	New Development
11	Guarantee System of Child Client	New Development
12	Centralized Bimtek System	New Development
13	PK Exam System	New Development
14	Medical Record System of Adult Client	New Development
15	Medical Record System of Child Client	New Development
16	Visitor Data System Of Adult Client	New Development
17	Visitor Data System Of Child Client	New Development
18	System of Counseling and Skills PK	New Development
19	Client Policy System	New Development
20	Employee Policy System	New Development

Conclusions and Suggestions

Based on the above discussion and the implementations that have been done, so it can be concluded:

- Based on Porter's value chain model Business activity on the Directorate of Community Guidance and Child Alleviation Training Center is divided into two main activities and supporting activities. The main activities consist of Adult Client Adjustment, Chilf Client Data Collection, and Client Extension. while supporting activities consist of Quality Improvement of Education and Services, Employee Management, and Management of Policy and Guidance.
- Based on the analysis of the children client data which is process manually in which it will create problem for the future, so when the client has passed the age limit, then they must be transferred status to an adult client.
- Data architecture development found 28 entities data required by business process. This data entity is built, updated and used in support of business processes.
- The development of the application architecture found 20 applications needed to manage data and support the organization's business processes.
- The development of technology architecture proposes a conceptual enterprise network that enables data sharing and collaboration between business units.
- The enterprise architecture model that has been generated can be used as a first step to achieve the organization's strategic objectives, and can serve as a guideline for the development of SI / IT policy to be measurable and clear

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