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TOGAF ADM to Improve the Promotion of Farm Edu-Tourism in Pondok Rangon Area

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Abstract— Edu-tourism is the one of the most popular sub-type of tourism these days,where many countries in the world use Edu-tourism as one of the main sources of income. However, the lack of promotion with such a good planning and good infrastructure makes Edu-tourism on farms less attractive. In this research we try to build a plan to develop an information systems architecture in the Pondok Rangon ranch area to analyze operational activities on the ranch, designing information system development architecture using TOGAF ADM, and make a system information enterprise architecture design model that can be used as one of the facility to optimize the development of the promotion of the educational tourism industry on livestock especially the Pondok Rangon area. This research is only limited to the preliminary phase up to the technology phase so that the next research is expected to meet all the TOGAF ADM phases.

Keywords—TOGAF, ADM, Enterprise Architecture, Pondok Rangon, Farm Edu-Tourism

I. INTRODUCTION

Educational tourism or Edu-Tourism is the one of the most popular sub-type of tourism these days (Bhuiyana, Islam, Siwar, & Ismail, 2010). There are many countries in the world use Edu-Tourism as one of the main sources of income. Roger in (Abubakar, Shneikat, & Oday, 2014) stated that Edu-Tourism is all types of tourism programs where participants travel to locations both individually and in groups with the main motives involved in or have learning experience, so that a combination of tourism and education has improved the performance of the tourism industry. In the rural and livestock world, for example, rural tourism and agricultural consumers are looking for new types of tourism (Mirea et al., 2016) such as agricultural entertainment, cooking classes on the farm, preparing herbal medicines, traditional demonstrations, and others with the aim of providing fun and educational recreation for children.

Pondok Rangon cattle farming, for the example, is one of the dairy cattle farming areas in DKI Jakarta, precisely in the Cipayung sub-distric of East Jakarta with an area of 11 hectares. In 2006 Mr. Rachmat Albaghory established an educational vehicle with thw concept of dairy farming known as Milk Palace Agro-Tourism Cibugary. Pondok rangon cattle farming has used technology, but the technology used has not been able to develop tourism industry marketing and promotions.

Efforts to promote the tourism industry are very important things to do (Dudensing, Hughes, & Shields, 2011) because the tourism industry really needs an economic development strategy to answer business challenges. There are several approaches to planning tourism industry development suc as city revitalization carried out by (Idajati, 2014), technology approach carried out by Liu and Gao in (Oliver, 2016), and internet of things carried out by (Dudensing et al., 2011; Julia, 2017; Yousaf & Xiucheng, 2018). In addition to discussing conventional methods and technology, it also discusses the need for systems that are integrated in the planning using The Open Group Architecture Framework (TOGAF) with Business Motivation Model (BBM) carried out by (Bhattacharya, 2017), TOGAF with Strategic Alignment Model (SAM)

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carried out by (Goepp & Petit, 2017), and TOGAF with Architecture Development Model (ADM) carried out by (Yamamoto, 2014).

II. LITERATURE REVIEW

Enterprise Architecture

Enterprise Architecture carried out by Osvald in (Yunis & Surendro, 2009) is the description of the stakeholder mission includes information, functionality, organization location, and performance parameter. Enterprise architecture describe the plan to develop a system or a set of systems. The main uses of architecture enterprise is to informed, guide, and limit decisions of the organizations, especially in making information technology investments. Enterprise architecture also can be used as a way to improve information technology efficiency carried out by Korudi in (Yunis & Surendro, 2009). The organization should adopt a method or framework that can be used in developing the enterprise architecture. So that enterprise architecture can manage complexity systems and can align business and IT that will be invested.

Overview TOGAF

The Open Group Architecture (TOGAF) gave the detail of the method how to build, manage, and implementing the enterprise architecture(Gandhi, Prima Kurniati, & Kunci, 2012), and information system that called as *Architecture Development Method (ADM)*. TOGAF has detail character, flexible, open source, thoroughly view perspective, and planning tool. TOGAF consists of the following components:

1. *Architecture Development Method (ADM),* that is a method which can be used as a guidance to plan, design, develop, and implementing information system architecture for organizations.
2. *Foundation Architecture (Enterprise Continum)* includes:
   - *Technical Reference Model*, model and classification of the generic service platform
   - *Standar Information Base*, basic standard of information systems.
   - *Building Block Information Base*, basic blocks of the future informations
3. *Resource Base (Business Requirements),* contain the source of information (gudlines, templates, checklists, information background, and detail material support)

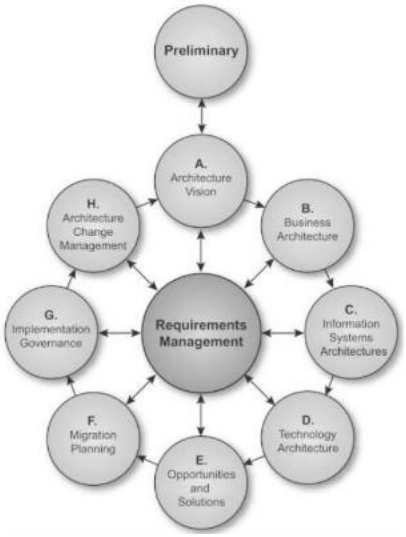

Fig 1. ADM Component of TOGAF

III. PROPOSED METHOD

In this research we mixed qualitative and quantitative research. Quantitative research method are used to examine certain populations or samples, data collection using research instruments, data analysis is quantitative statistics with the aim to test predetermined hypotheses. Quantitative research methods are also called discovery methods (Sugiyanto, 2008) because this methos can be found and developed by various new science and technology. Qualitative approach in this study is used to interview livestock owners about industrial marketing and quantitave approach is used to researching the population or the samples on the Pondok Rangon farm. In this study there are view steps taken based on the research framework that can be seen in the form of a flow diagram in Fig. 1.

The stages in the research framework are devided into 4 basic frames, namely:

1. Input

   In this study we took data in several ways, including:

   a. Survey

      1) Observation

         In this method, we went to the Pondok Rangon area farm to find out the business processes that were running in the company, so that we could know firsthand what was happening.

      2) Interview

         In this method, we went to the Pondok Rangon area farm ro interview the owner, cooperatives and interested farmers in accordance with the research topics taken.

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b. Quetionnaire

In this method, we took yhe references about enterprise architecture and gave the quationnaire, so we can define the definition and scope used in the study.

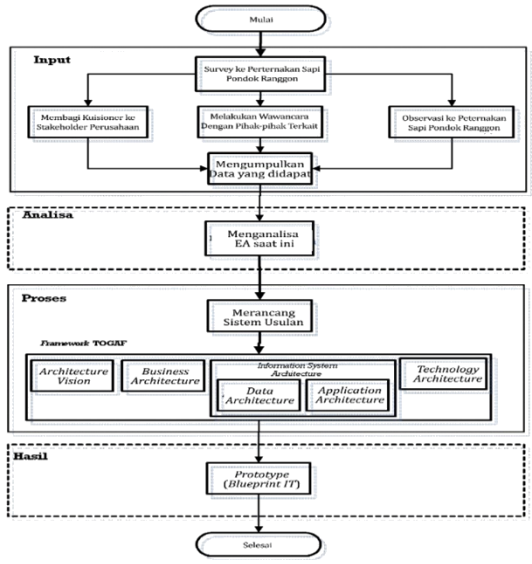

Fig. 2 Research Steps

2. Analysis

in this stage, we analyze the vision, mission, and the goal of the organization in order to analyze the needs of the organization to create a productive society and be actively involved

3. Process

In this stage we enterprise architecture design is carried out as a proposal covering vision architecture, business architecture, information system architecture, and technology architecture that is tailored to the needs of the company in the future

4. Output/Result

The result of the proposed architectural design are the design model of the enterprise architecture information system that can be used as one of the facilities at the Pondok Rangon area for presenting information and optimizing the development of tourism industry marketing at the Pondok Rangon area farm.

We propose enterprise architecture modeling for strategic information systems and information systems and information technology development. To define the strategy of the architecture and to determine the architectural parts to be designed, the TOGAF ADM Method is used. For the design steps in the TOGAF ADM framework are explained as follows:

Stage I. Preliminary phase: framework and principles

This phase is an architectural planning preparation phase consisting of organizational enterprise scope, management support and government regulations, define the architecture and organization team, and identify and establish architectural principles.

Stage II. A Phase: Architecture Vision

In this stage we determining the need for designing an information system architecture includes profile of the organization, the organization's vision and mission, organizational strategies and objectives, target organization, identification of stakeholders and business needs, and defining improvement problems and objectives.

Stage III. B Phase: Business Architecture

In this stage we determine the desire business model or business activity by doing three things, namely: define the main functional area, establish business functions, identify tasks and responsibilities.

Stage IV. C Phase: Information System Architecture-Data Architecture

In this stage we determining candidate data, defining a data entity, making relations between business functions and data entities.

Stage V. C Phase: Information System Architecture- Application Architecture

In this stage we identify application groups, determine the type of application needed, and make application architecture modeling.

Stage VI. D Phase: Technology Architecture

In this last stage we determine environment and location, and identify technology platform

IV. RESULT AND DISCUSSION

In order to make an architecture enterprise design of information system, to optimize the tourism industry marketing development, we refer to the TOGAF framework which sees enterprise architecture in four categories, namely: business

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architecture, data architecture, application architecture, and technology architecture.

The definirion of the architecture and organization team is designed to find out the business scenarios that occur in carrying out business and architecture for the development or tourism industru marketing are as follows:

a. Human resource actor and authority

b. System actor and functionality

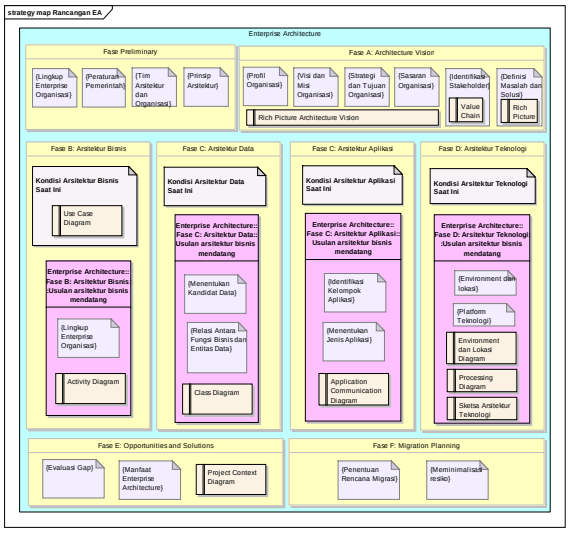

Fig 3. Enterprise Architecture Design Principles to be Developed

TABLE I. HUMAN RESOURCE ACTORS

Actor	Authority
Leader	Leading all business activities, setting business objectives and ensuring overall business development.
Secretary and Treasurer	Managing planning, financial, and supervisory affairs
Production Section	Regulate pasteurized milk production activities starting from raw material supply, supervision from processing activities ti products ready to be marketed
Marketing Section	Designing all marketing activities has the task of setting marketing targets, planning, organizing, controlling and driving all marketing activities.
Argotourism Section	Plan and control tourism activities
Processing Section	Planning, data collection, and monitoring all activities in the stable
Public Relation	Control all activities related to outside parties
Agriculture Department PPHP Domestic Market Director General	Determine organizational policies, guidanceor counseling from the government to farmers
Agribusiness Product Marketing Unit (UPPA)	Opening a path of cooperation in marketing products especially dairy products

TABLE II. SYSTEM ACTOR

System Actor	Function
Information system on education tourism management at Pondok Rangon are farms	Provide a means of promotion for farmers in the field of tourism

Stage II. A Phase: Architecture Vision

1. profile of the organization
2. The organization's vision and mission
3. Organizational strategies and objectives
4. Target organization
5. Identification of stakeholders and business needs
6. Defining improvement problems and objectives.

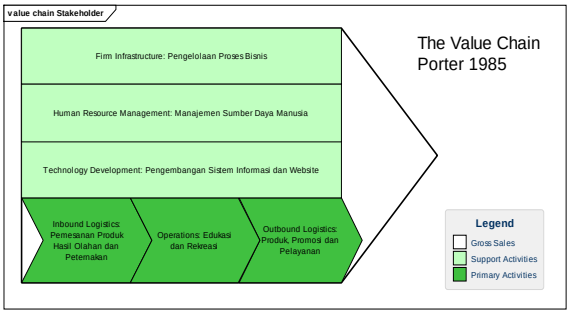

Fig 4. The Value Chain of The Management Board of Edu-tourism in the Pondok Rangon Regional Ranch

Stage III. B Phase: Business Architecture

1. Define the main functional area
2. Establish business functions
3. Identify tasks and responsibilities.

Stage IV. C Phase: Information System Architecture-Data Architecture

1. Determining candidate data
2. Defining a data entity
3. Making relations between business functions and data entities.

Stage V. C Phase: Information System Architecture-Application Architecture

1. Identify application groups
2. Determine the type of application needed
3. Make application architecture modeling.

Stage VI. D Phase: Technology Architecture

For the determination of the application architecture to be used, it is defined by the pattern of application group solutions to help main and supporting business functions.

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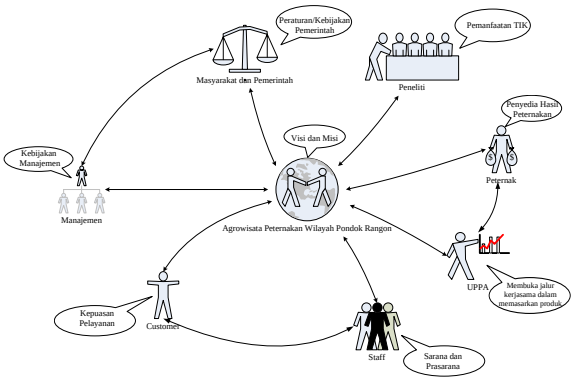

Fig 5. The Rich Picture of Farm Edu-tourism in Pondok Rangon Area

Eduwisata business architecture in Pondok Rangon regional ranch can be described as a model as follows

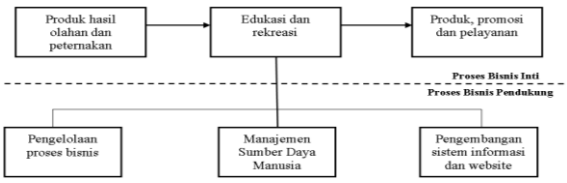

Fig 6. Farm Edu-tourism in Pondok Rangon Regional Business Architecture

TABLE III. PROCESS BUSINESS CATALOG

No.	Business process	Description
1.	The business process of making educational tour packages	The business process of preparing a marketing plan is carried out to process condition survey data, markets, customers, and competitors that are used to produce recommendations for improvements and marketing targets
2.	Customer service business processes and education tourism payments	One sub-process in determining marketing strategies is the determination of the price of services. The price of new services is made according to market conditions, competitors and customer desires so that it can attract customers to purchase these services
3.	Business process for preparing for educational tours	One sub-process in determining marketing strategies is the development of new services. New services are created in accordance with market conditions and customer desires so as to satisfy customer needs
4.	The business process of marketing processed products and livestock	One sub-process in determining marketing strategies is determining promotion. Promotion is important because it can help in providing information about services and attract customers to buy these services.
5.	Complaint and payment service business processes	The complaint handling process is carried out to accommodate and handle every problem faced by the customer so that it can increase customer satisfaction and loyalty to the company
6.	System administrator business process	The use of technology and information is an effort to eliminate the limitations that are owned by the community. The information available through internet media is currently very much and can provide inspiration and opportunities to develop businesses. The internet is not only an effective and inexpensive marketing medium, but also can provide information about products that can be produced by the community

TABLE IV. SOLUTION FOR EACH BUSINESS FUNCTION APPLICATION GROUP

No	Name of business activity	problems	Information System Solution Pattern	Application Group Solutions
1.	Ordering processed products and farms	Still lack of information.	Marketing system for processed products and livestock	-Data collection - User Management - Submission of product Order - Payment of products - Making Financial Statements
2.	Education and recreation	Not available	- Detailed information online (online) - System for making educational tour packages - Preparation system for implementing educational tours	- User Management -Data collection - Making Tour Packages - Making Financial Statements
3.	Products, promotions and services	Lack of Informations	- Create an online application for all administrative activities. - Customer service	- Submission of Tourism Orders - Giving Tour Package Details and - Approval Confirmation Limit and

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			system and education tourism payment - Complaint and payment service system	Detail Confirmation - Tour packages - Pay for Tour Packages - Travel Preparation - Destination Preparation - Submission of Customer Complaints - Making Complaint Reports
4.	Management of business processes	Management and monitoring are still poorly organized	Development of information systems with data access rights	- Report Making
5.	Human Resource Management	Everything related to the transaction has not been processed properly.	Development of information systems with data access rights	Website system administrator
6.	Development of information systems and websites	Security and processing are still not effective	Data access rights with user and password.	Website system administrator

Based on the description of application group solutions for each business function above, the following application code is designed:

TABLE V. APPLICATION CODE

Application Group	Application Code	Application Candidates
System for making educational tour packages	WAEC_1.1 WAEC_1.2 WAEC_1.3	1.1 Management of Users 1.2 Data Collection 1.3 Making Tour Packages.
Customer service system and education tour payment	WAEC_2.1 WAEC_2.2 WAEC_2.3 WAEC_2.4 WAEC_2.5	2.1 Submission of Tourist Orders. 2.2 Giving Tour Package Details and Confirmation Limits. 2.3 Tour Package Detail Confirmation and Confirmation. 2.4 Payment of Tour Packages. 2.5 Making Financial Statements
Preparation system for implementing educational tours	WAEC_3.1 WAEC_3.2	3.1 Tourism Preparation. 3.2 Destination Preparation.
Marketing system for processed products and livestock	WAEC_4.1 WAEC_4.2 WAEC_4.3 WAEC_4.4 WAEC_4.5	4.1 Data Collection. 4.2 Management of Users. 4.3 Submission of product orders. 4.4 Payment of products 4.5 Making Financial Statements
Complaint and payment service system	WAEC_5.1 WAEC_5.2	5.1 Submission of Customer Complaints 5.2 Making a Complaint Report.
System administrator	WAEC_6.1 WAEC_6.2 WAEC_6.3 WAEC_6.4 WAEC_6.5 WAEC_6.6	6.1 Backup Database. 6.2 Restore Database. 6.3 User Settings. 6.4 User History. 6.5 Information Settings. 6.6 Send Information.

Application system architecture can be modeled using application communication diagrams, as follows:

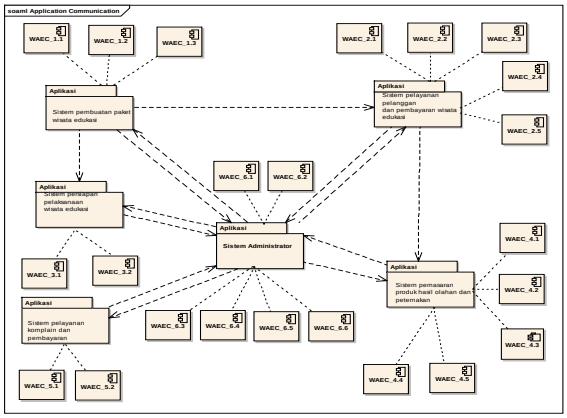

Fig 7. Application Communication Diagram

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TABLE V. USE OF PLATFORM TECHNOLOGY

Group	Jenis
Operation System	• Windows XP/Linux all variant.
Aplikation	• Deployment Server : Apache Web Server. • Programming Language : Java, PHP, JavaScript, AJAX. • Database Engine : PostgreSQL.
Hardware	• Komputer web server : Intel 80486, Debian/Ubuntu Linux atau UNIX FreeBSD, aplikasi Litespeeds, 2GB, 32 MB. • *Data Center* • Dedicated Line fiber optics • Telephone, telephone line, modem, switch, kabel, and RJ-11 connector.
Comunication	Internet.
Security	• *Firewall*: to regulate communication between networks • *Network Management System* (NMS): to control the system and its resources by controlling its use, access monitoring, and reporting the latest conditions • Anti-virus *client/server*

V. CONCLUSION AND SUGGESTION

As the result taken, we can conclude that TOGAF ADM that we used is still generic. TOGAF provides guidance for defining data architecture, application architecture, technology architecture and business architecture. All of these architectures are prepared to become an architecture framework process. The final result is the design of an information system architecture and information technology governance standards.

This research is only limited to the preliminary phase up to the technology phase so that the next research is expected to meet all the TOGAF ADM phases.

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