Designing Enterprise Architecture for Distributor of Consumer Product Using TOGAF ADM

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Abstract. The purpose of this research is to design enterprise architecture for CV. Adiwarna Tunggal Jaya in accordance with its capacity as a distributor of consumer products. CV. Adiwarna Tunggal Jaya does not yet have an enterprise architecture blueprint as a reference for creating integrated information systems. The method used in designing enterprise architecture in this research is The Open Group Architecture Framework Architecture Development Method (TOGAF ADM) as a framework that will help to design a CV. Adiwarna Tunggal Jaya. The steps applied in TOGAF ADM in this research will only use four phases of the nine phases, namely Architecture Vision, Business Architecture, Information Systems Architectures, and Technology Architecture. The output of this research is to provide a blueprint for enterprise architecture guidance that can help CV. Adiwarna Tunggal Jaya to get a clear vision and mission of the company to improve its business processes and supports achieving its strategic goals and as a guide for a future development. The conclusion of this research is that the design of the enterprise architecture using TOGAF ADM can be used by the CV. Adiwarna Tunggal Jaya according to the documentation and processes in progress and can provide a blueprint for the development of information systems to support ongoing business processes.

1. Introduction
Enterprise Architecture is technology planning and management that may help the event of companies by understanding the present condition of the corporate in terms of a holistic and interconnected perspective between existing technology resources, information flow, business processes, and strategy guidance [1]. Design of Enterprise Architecture (EA) gives an outline of the looks of interconnected parts and relational steps with explaining each part of the element [2], [3]. Enterprise architecture could be used as a tool or strategy to support business processes and to achieve the business goals [4].

There are currently many enterprise architecture frameworks that could be used by organizations or companies. Supported by Cameron and McMillan’s research on the five most typically used enterprise architecture frameworks, TOGAF frameworks are more superior compared to other frameworks [5]. The advantages of TOGAF include process completion, TOGAF ADM, flexibility within the use of elements, integration/interconnection between layers, vendor neutrality, and alignment with industry standards. The Open Group Architecture Framework (TOGAF) will provide a dynamic, comprehensive framework, and tools that are helpful in supporting business development and enhancing IT infrastructure efficiency [6]. Information technology can make business processes more efficient and fast [2].
CV. Adiwarna Tunggal Jaya is a distributor company that distributes daily necessities. For this reason, an information technology is needed, considering that the company is still using manual documents that have not been integrated between one division and another. The purpose of this research is to plan and design an Enterprise Architecture in line with the wants and capabilities of CV. Adiwarna Tunggal Jaya. Enterprise architecture development is useful including in terms of assets, costs and capabilities. In this research, the method used to design Enterprise Architecture is The Open Group Architecture Framework Architecture Development Method (TOGAF ADM) as a framework that will help to design the CV. Adiwarna Tunggal Jaya. This research only uses four phases of the nine phases of the existing Architecture Development Method. The preliminary phase, architecture vision phase, business architecture phase, information system architecture phase, and technology architecture phase.

2. Method
The method used in this research is obtained from a survey involving research sources as the object to be studied. The initial stage was achieved by direct observation, record selection of the document, and interview process. This research provided data in CV. Adiwarna Tunggal Jaya used the TOGAF stages with the Architecture Development Method (ADM) model as the business architecture framework for the company to design. TOGAF offered a specific comprehensive approaches for designing, managing, and implementing enterprise architecture and information system called Architecture Development Method (ADM) [7], [8]. Besides, the TOGAF ADM as shown in Figure 1 is a versatile tool that can check the various modelling techniques used in the design, as this approach can be modified to changes and needs during design.

![Figure 1. TOGAF ADM Version 9.1 [8]](image-url)
The following is a description in Figure 1 of the TOGAF phase [7]:

Phase A:
The initial stage of ADM (Architectural Development Method) was architecture vision. This includes information on defining scope, recognizing stakeholders, architecture vision, and approval.

Phase B:
This describes the initial state of business architecture and specifies the business model or business activity that is needed based on market scenarios.

Phase C:
At this stage greater emphasis is placed on the activity of how the architecture of the information system developed.

Phase D:
It constructs the technology architecture you want, starting from deciding the type of technology candidate you need.

3. Results and Discussion
The result of this research conducted at CV. Adiwarna Tunggal Jaya using TOGAF ADM based on observation and interview. It can be seen that the business process requires enterprise architecture consisting of four categories: business architecture, data architecture, application architecture, and technology architecture. The TOGAF ADM framework can support the stage of the enterprise architecture planning [8]. This research only uses four phase of activity such as architectural vision phase, business architecture phase, information system architecture phase, technology architecture phase. The results of the phases which were completed are as follows:

3.1. Preliminary Phase
The purpose of this phase is to prepare an analysis of the enterprise architecture to be carried out so that it is expected to match what is needed in the company. In this phase the catalog framework will be produced as follows [2]:

4. Business Architecture
   a. Produce productive resource
   b. Prioritizing work safety
   c. Environmentally-friendly production process

2. Data Architecture
   a. Data is a company asset
   b. Data can be accessed (accessible)
   c. Data can be trusted
   d. Data is protected and guaranteed security

3. Application Architecture
   a. Ease of use
   b. The accuracy of the application with the business
   c. Application flexibility
   d. Application security

4. Technology Architecture
   a. Ease of technology
   b. Technology security
   c. Technology interoperability
3.2. Architecture Vision Phase
This step focuses on identifying the purpose of implementing the enterprise architecture for the enterprise and evaluating the readiness of the enterprise to transform to achieve the target enterprise architecture including vision and mission, enterprise goals, strategy objective, scope, and stakeholders.

3.3. Business Architecture Phase
Business Architecture phase aims to confirm that the enterprise architecture design are going to be made in line with business processes in CV. Adiwarna Tunggal Jaya that can be seen in Table 1.

Table 1. Business Architecture

| No | Problem                                      | Current Architecture   | Method                          | Architecture Expected                                      |
|----|----------------------------------------------|------------------------|---------------------------------|------------------------------------------------------------|
| 1  | Business process still doing manual documents so take a long time | Still using manual document | Designing process automation with information data using TOGAF ADM framework | Can be runs by using an information system                  |
| 2  | Aligning vision and mission with information technology architecture | Absence of rules in vision and mission that used information technology architecture | Evaluating using information technology architecture | Can align the vision and mission with information technology architecture according to the stages of TOGAF ADM |
| 3  | Process of collaboration with parties (manufacturer and consumer) | Still doing manual process to collaboration with other parties | Integrating system | Collaboration process with other parties can use information system |

From Table 1, it can be concluded that it is necessary to harmonize the vision and mission with the information system to help business process running by making design using TOGAF ADM.

3.4. Information Systems Architecture Phase
It is discussed at this phase how the enterprise architecture for the information system will be created. There is two aspect in this phase namely application architecture and data architecture.

3.4.1. Application Architecture
In the information system architecture phase, the appropriate application architecture is an information technology architecture that can provide convenience in accessing and support the smooth business process CV. Adiwarna Tunggal Jaya, which will be designed online so it can be used flexibly anytime and anywhere.

3.4.2. Data Architecture
In the data architecture, CV. Adiwarna Tunggal Jaya stakeholders have to provide centralized and integrated data from various work units that can be delivered on time, accurately and relevantly with a view to improving coordination and synchronization of business processes and information.

3.5. Technology Architecture Phase
Technology architecture designed to determine the technology required for the application in data processing to an environmental system. The following in the Figure 2 is a network overview that will
be designed so that technology system runs and can be integrated in accordance with business process requirement.

![Network Overview](image)

**Figure 2. Network Overview**

Through research done using TOGAF ADM for information systems in CV. Adiwarna Tunggal Jaya, data from each division can be incorporated and applied by adjustment of existing business processes. TOGAF ADM is structured as a general framework and has good business-technology alignment [9]. Through previous research using the TOGAF ADM, among others, it has reported that it is not always appropriate to use the entire process when implementing TOGAF ADM [10]. Uses the TOGAF Enterprise Architecture Framework to determine how an organization designs a system to support business and technology needs in achieving the expected vision and mission [5].

Therefore, this study can provide a blueprint for aligning the vision and mission of the company to produce better business processes and better performance of the infrastructure than before. This study is involving all stakeholders, both internal and external to achieve goals that in line with the organization's vision and mission of developing better business processes.

4. Conclusions
The conclusion of this research in implementing TOGAF ADM in CV. Adiwarna Tunggal Jaya can be reached. The process of designing enterprise architecture using TOGAF ADM according to documents and processes that are in progress and can generate information systems designed to support the ongoing business processes. TOGAF ADM can provide guidelines for the further growth and improvement of more business processes that are successful from previous development.

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