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Information Systems/Information Technology Strategic Planning Using the Open Group Architecture Framework Development Method

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Abstrak

CV. Suien Insan Persada adalah salah satu perusahaan pengolahan kayu, yang produksinya menggunakan bahan awal kayu glondongan. Bahan kayu kemudian diproses menjadi kayu lembaran untuk perusahaan pembuat mebel dan dikirim ke luar negeri. Industri kayu ini berlokasi di Kab. Boyolali, Jawa Tengah. CV. Suien Insan Persada belum menggunakan teknologi informasi yang memadai, pengolahan data yang dilakukan oleh bagian produksi menghasilkan laporan manual yang diberikan dan dikelola langsung bagian administrasi. Cara ini membuat pengarsipan menjadi lebih sulit untuk dikelola karena laporan manual yang berupa penulisan di kertas yang mudah rusak dan beresiko data hilang. Permasalahan yang terjadi di CV. Suien Insan Persada memerlukan adanya solusi guna mempermudah CV. Suien Insan Persada dalam membuat laporan agar permasalahan di atas dapat terselesaikan. Solusi untuk mengatasi permasalahan dengan pemanfaatan Teknologi Informasi (TI) dengan renstra yang baik yaitu dengan membuat arsitektur sistem informasi berupa TOGAF ADM. TOGAF ADM dipilih karena memiliki kerangka kerja yang terperinci dan bersifat open-source yang bisa digunakan oleh CV. Suien Insan Persada untuk membangun suatu Enterprise Architecture (EA) yang sesuai dengan kebutuhan selain itu TOGAF memiliki kelebihan sifat yang fleksibel dan open source. Hasil penelitian diperoleh bahwa Penggunaan TOGAF ADM dapat menghasilkan dokumen rencana strategis SI/TI yang diharapkan dapat menyelesaikan permasalahan yang dihadapi CV. Suien Insan Persada.

Kata kunci*: *Perencanaan Strategis, SI/TI, TOGAF

Abstract

CV. Suien Insan Persada is a wood processing company whose production uses logs as the starting material. The wood is then processed into wood sheets for furniture manufacturing companies and shipped overseas. This wood industry is located in Kab. Boyolali, Central Java. CV. Suien Insan Persada has not used adequate information technology. Data processing carried out by the production department produces manual reports that are given and managed directly by the administration section. This method makes filing more difficult to manage because manual reports in the form of writing on paper are easily damaged, and there is a risk of data being lost. The problems that occur in CV. Suien Insan Persada needs a solution to make CV easier. Suien Insan Persada in making a report to resolve the above problems. The solution to overcome the problem is utilizing Information Technology (IT) with a good strategic plan by creating an information system architecture in the form of TOGAF ADM. TOGAF ADM was chosen because it has a detailed and open-source framework that can be used by CV. Suien Insan Persada to build an Enterprise Architecture (EA) that suits the needs. Besides that, TOGAF has the advantage of being flexible and open source. The results showed that TOGAF ADM could produce IS/IT strategic plan documents expected to solve the problems faced by CV. Suien Insan Persada.

Keywords: Strategic Planning, IS/IT, TOGAF

1. INTRODUCTION

CV. Suien Insan Persada is a wood processing company whose production uses logs from various places as the starting material. Then it is processed into sheet wood for furniture manufacturing companies and shipped overseas. This wood industry is located in Boyolali Regency, Central Java. As a company actively engaged in production to produce goods that can be distributed, it is important to record information regularly so that the company has accurate data and is by its goals. (Riswara et al., 2021; Suganda et al., 2021).

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However, based on existing data, it shows that CV. Suien Insan Persada has administrative management problems in manual recording using Microsoft Word. Using manual reports often experiences various problems related to the need for fast, timely, and accurate information. Besides, it will be more difficult to manage because manual reports in the form of writing on paper are easily damaged, and there is a risk of data loss. One of the solutions to overcome the above problems is utilizing Information Technology (IT). Good Information Technology must be built with a good strategic plan (Prambayun & Putri Maharani, 2021; Sanoto, 2021). Information Systems is the process of identifying, evaluating, and deciding on strategies that can be called strategic formulas, namely the solution requires the support or utilization of Information Technology (Pradipta & Irawan, 2018a; Wibowo & Chernovita, 2022).

Information Technology is built with a specific strategic plan for one organization. It is done to align information systems/information technology and the company's business (Rumiarti et al., 2019; Tallo & Papilaya, 2021). Information system architecture and information technology play an important role in companies looking for profits, such as in the industrial sector (Supriyanto & Augie David Manuputty, 2021; Thaib & Andi Wahju Rahardjo Emanuel, 2020). Information Systems and Information Technology used is one of the tools used to create this information system architecture is TOGAF ADM (The Open Group Architecture Framework Development Method). TOGAF as a tool is expected to produce a strategy to deal with this risk, the TOGAF method was chosen because it has a detailed and open source framework that can be used by every organization in order to build an Enterprise Architecture (EA) that suits the needs of the organization, not only that TOGAF also has the advantage of being flexible and open source (Hizbullah & Salmin, 2021; Utami et al., 2018). This method focuses on infrastructure and the ADM (Architecture Development Method) cycle, which is more flexible to the conditions of the CV. Suien Insan Persada company (Pradipta & Irawan, 2018a; Thaib & Andi Wahju Rahardjo Emanuel, 2020).

The initial step of analysis on the CV. Suien Insan Persada used the value chain as a tool to map business processes, main activities, and supporting activities according to company documents. The value chain itself is a collection related to value creation activities, starting with basic raw materials, coming from suppliers and moving to a series of value added activities, which include production and marketing of products, in the form of goods or services, and ends with distribution for product acceptance by end consumers. The next step is to use the ADM (Architecture Development Method) method. There are eight main phases of the ADM method, one of which is the Preliminary Phase, which is the preparatory phase to confirm the commitment of interest. Architecture Vision, this phase aims to gain management commitment to the ADM phase. Business Architecture Information System Architecture This phase aims to determine views and explain the business architecture and targets for future processing (Hesvindrati et al., 2021; Rosalina et al., 2022). Technology Architecture, this phase is a view in running the next business to be more coordinated (Mupaat et al., 2021; Tao et al., 2017). In general, opportunities and solutions are stages for evaluating and selecting implementation, and selecting strategic parameters for change, calculating expenditure funds and profits (Hudha et al., 2017; Khoiruddin et al., 2020). Migration Planning This phase aims to sort project implementation based on priority and the list will become the basis for a detailed implementation and migration plan. Implementation Governance is a reference for program work and Architecture Change Management, which is the final phase in determining programs (Kurniawan et al., 2018; Wardhana & Pramana, 2022). Gap analysis (gap analysis) is an additional method to determine the condition of the company's current system, what business architecture is expected in the future, and whether IS/IT has met current needs. The purpose of this research is IS/IT strategic planning using The Open Group Architecture Framework Development Method (TOGAF ADM). It is

expected that research using the TOGAF ADM method can produce a blueprint containing recommendations and strategic plans to help achieve company goals.

2. METHODS

The methodology for architectural design in TOGAF is called the Architecture Development Method (ADM). The ADM method guides planning, designing, developing, and implementing enterprise architecture. In Figure 1, the ADM mapping has 8 phases which are preceded by a preliminary which can be seen with an explanation of each phase.

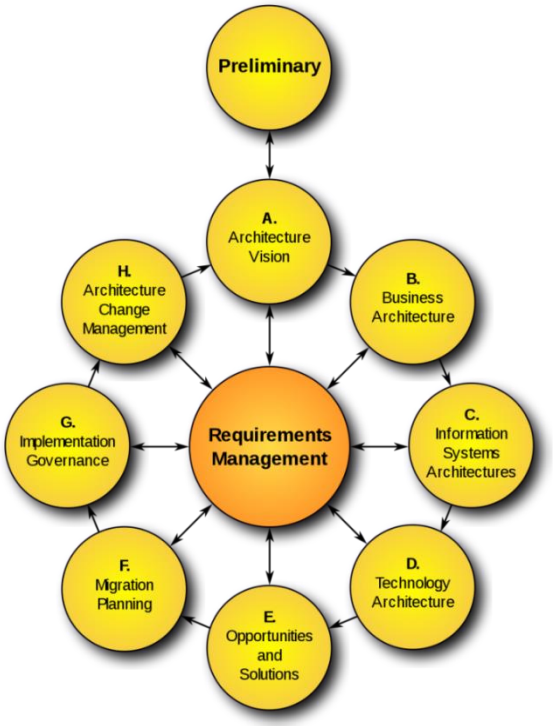

Figure 1. The Open Group Architecture Framework Development Method (TOGAF ADM)

Based on the Figure 1, it can be explained that the preliminary phase is the initial preparation and initiation activities needed to fulfill the architecture's scope, including the organization's definition, specific architectural frameworks, and definitions of architectural principles. The explanation of the Open Group Architecture Framework Development Method (TOGAF ADM) phase is as follows.

Phase A: Architecture Vision: Defining the organization's scope, vision, and mission and mapping the overall strategy. Phase B: Business Architecture: Describes the current business architecture, avoiding the impact of architectural deviations. Phase C: Information System Architecture: Developing architecture for data and applications. Phase D: Technology Architecture: Creating the entire infrastructure that will be used. Phase E: Opportunities and Solutions: Develop the overall strategy, and seek solutions for the design in the previous phase. Phase F: Migration Planning: Planning migration preparations for the designs made. Phase G: Implementation Governance: Carrying out the implementation of existing designs and implementation. Phase H: Architecture Change Management: Monitor the running system for the benefit of change and determine whether to start a new cycle. It is necessary to repeat the preparation phase.

3. RESULTS AND DISCUSSION

Result

Preliminary*: *Framework and Principles Phase

The first phase of TOGAF ADM requires defining business processes within the company as the main composition related to enterprise architecture development. After conducting research through direct interviews with company owners and observations, the company's main activities and supporting activities were obtained and became the core of the CV. Suien Insan Persada company following :

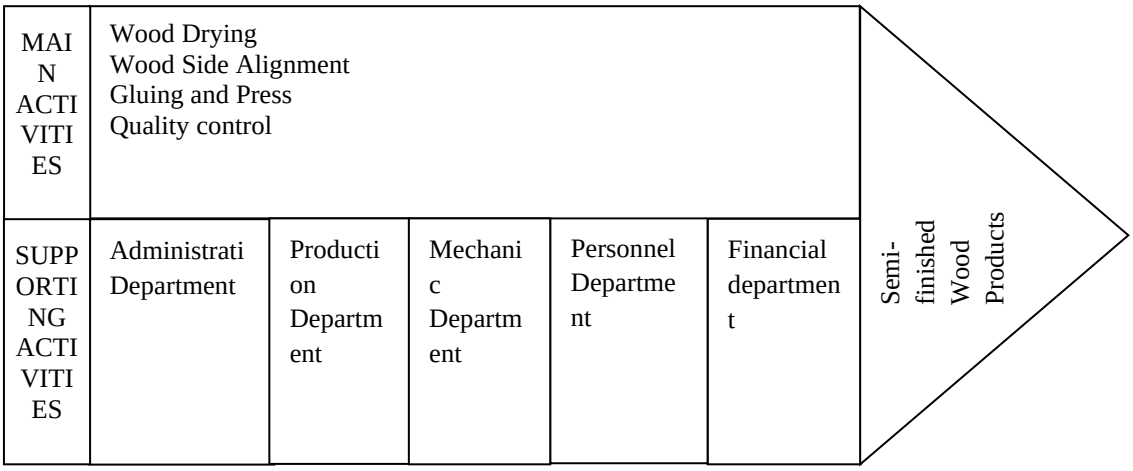

Figure 2. Value Chain Pada CV. Suien Insan Persada

Figure 2 can be explained the value chain of CV. Suien Insan Persada has two activities. The main activity is the main activity in the production process. Supporting activities, in this case, are parts of the company such as administration, production, mechanics, personnel, and finance.

Architecture Enterprise Phase

This principle is made based on the needs of the company. Enterprise architecture principles are formed based on business, data, application, and technology principles. The principle used can be seen as: Businesses must continue to operate without being disturbed by all the risks that threaten to stop business processes; Data has value for companies. The value in question is to bring financial benefits; Applications that are built must be able to accommodate user needs and can include various other systems; The system built must be by existing technology.

Architecture Vision Phase

In this phase, the vision to be achieved in architectural development is as follows: The system can accommodate the required data synchronization. Development of systems with capabilities where there is one with an interface that can connect with other systems with one account information.

Company profile CV. Suien Insan Persada, engaged in the wood manufacturing industry, has a vision of alleviating unemployment and poverty in Indonesia, especially around the company, and expanding its network in world markets. This vision is also accompanied by its mission of providing jobs, quality products, and on-time delivery to increase profits. This company is located in Klatak, Ngemplak, Kembang, Ampel District, Boyolali Regency, Central Java 57352. The current condition of the company's information

system architecture is still simple. So, an information system architecture is needed according to the needs to achieve the company's vision and mission in the future.

Requirement Management Phase

This phase aims to determine all the requirements for every process in TOGAF and the managed enterprise architecture. Then everything is implemented into the TOGAF ADM phases. The needs referred to are the company's core business, namely producing wood materials into semi-finished wood, which has the main activities and supporting activities in the Value Chain on Figure 2. The problem analysis obtained is that there are sections that manage their tasks using the system but are not optimal. Some sections record reports through bookkeeping, and only the finance section processes staffing reports with a desktop. At the same time, other parts have not used the application according to its use. Solving problems in current conditions by proposing applications as needed and integrating in the network in every part of the organization needed to improve data flow and reduce the risk of document damage. Furthermore, this company can be managed effectively and efficiently in the future.

Business Architecture Phase

The business architecture phase starts with analyzing current business processes to identify the problems that occur and what the company wants to achieve. The gap between the problem and the target to be achieved will be analyzed to produce a Gap Analysis that is adjusted to the architectural vision in the previous phase. The steps taken include: Perform analysis of current business processes. Determine the target business architecture to support the architectural vision In this phase, it produces proposed business processes that aim to improve current business processes and support achieving the architectural development vision. At this stage, defining the relationship between these companies has a business process as shown in Figure 3. Meanwhile, stakeholders who have an interest in CV. Suien Insan Persada, among others, as shown in Table 1.

Table 1. Relationship Between Stakeholder and Company

Stakeholder / Activity	CV. Suien Insan Persada	public
Main: • Wood drying • Alignment of wood side • Gluing and pressing • Quality control	Company Director, Production Head, Production Employee, Wood Drying Employee, Wood Side Alignment Employee, Gluing and Pressing Employees, Quality control.	General Public, Wood Surveyors.
Supporting: • Administrative Division • Personnel • Production Division • Mechanical Division	Director of the Company, Secretary of Administration and Personnel, Head of Production Division, Mechanical Engineering Employees.	Boyolali Regency Government Agencies, Export Expeditioners, Private Companies, Furniture Craftsmen.

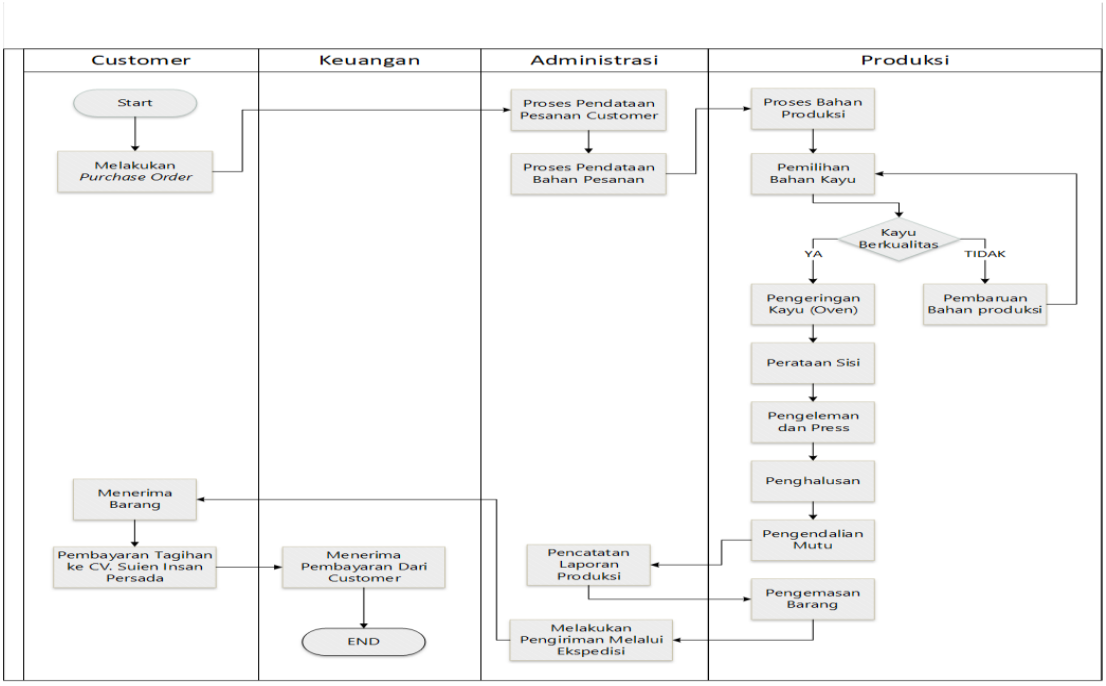

Figure 3. CV. Suien Insan Persada Business Process

Information System Architecture

In this phase, the aim is to determine the condition of the information system used by the company. The analysis is performed on the target information system. It is expected to support the architectural development vision and accommodate system requirements based on the proposed business processes. This phase is divided into two, namely, data architecture and application architecture. The data architecture defines the main data types needed to support all business functions as defined in the business model. The data architecture is presented in Table 2.

Table 2. Data Architecture

Business Process	Data Process
Procurement of raw materials	Procurement Staff
	Raw material
	Budget
	Suppliers
	Purchase
	Another company
Material feasibility test	Feasibility testing
	Worthy
	Raw material
Teamwork	manager
	Administration
	Cooperation Statement
	Another company
Production	Production section
	Distribution section
	Raw material
	Wood products
Product Marketing	marketing

Business Process	Data Process
Product ordering	customers Wood products marketing customer services Wood products customers Complain Product service

Application architecture describes the system's condition used by the company by analyzing the current and proposed application conditions to accommodate user needs, as in the Table 3.

Table 3. Application Architecture

Business Functions	Application Group	Definition
Procurement of raw materials	Raw Material Management Information System. Raw Material Management Application.	This application stores the amount of raw material data in each production process.
Feasibility test	Material Feasibility Decision Support System.	The system used to facilitate and assist the processing of wood
Cooperation	Timber Processing Information System	This application is used to manage work contracts from other companies.
Production	Office Management Information System (e-Office)	This application is used to manage production results according to customer demand.
Marketing	Production Information System.	This system will be used to publish information about the furniture products offered and product orders can be made online
Budget	Marketing and Ordering Management Information System	This application will be used to manage finances

Technology Architechture

This phase is carried out to increase or improve the operations of existing applications and to be able to describe the technological structure needed to manage raw material procurement, production, and sales activities at CV. Suien Insan Persada. The stages in making technology architecture are: Suggest network configuration. Determine the required software and hardware. The tools used are platform decomposition diagrams which provide an overview of technology platforms that can support information systems, as shown in Figure 4.

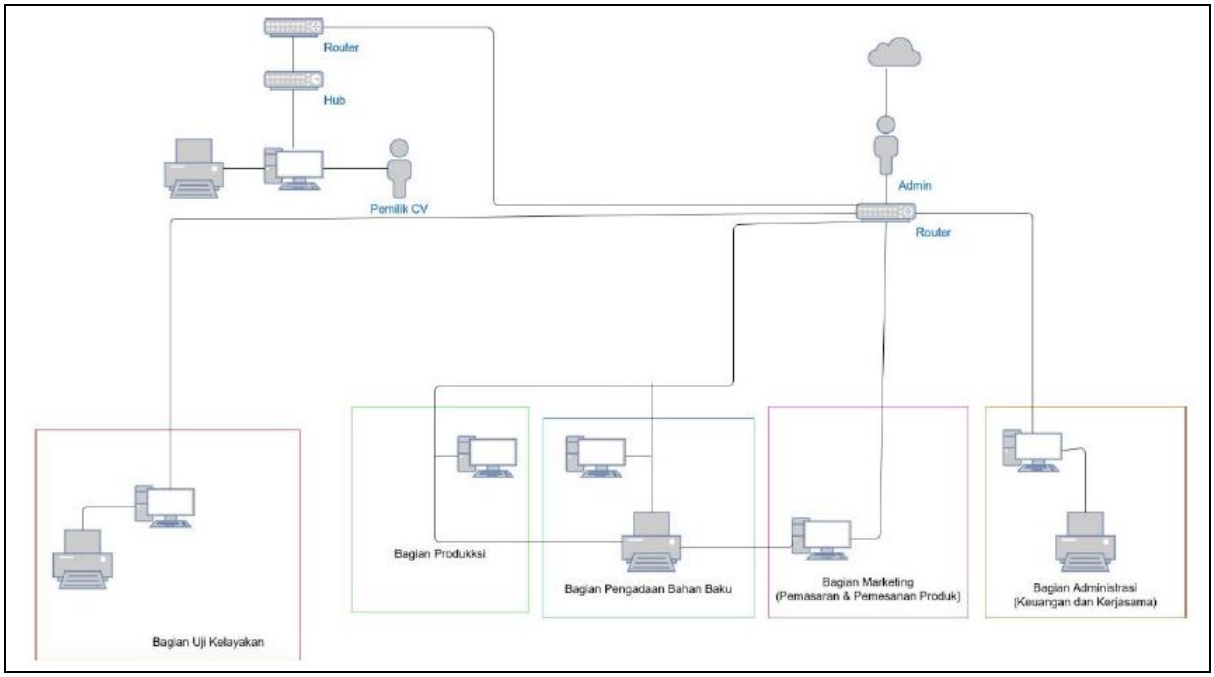

Figure 4. *Platform Decompotition Diagram* CV. Suien Insan Persada

Discussion

The research results show that the TOGAF ADM in this study can provide benefits. It can be used to formulate information system strategic planning at CV. Suien Insan Persada. TOGAF (The Open Group Architecture Framework) is an enterprise architecture that provides a comprehensive approach to designing, planning, implementing, and managing enterprise architecture (Pradipta & Irawan, 2018b; Zahra et al., 2020). From time to time, TOGAF is widely used in several fields, namely manufacturing, industry, education, and banking (Agape & Wijaya, 2021).

Information Technology (IT) is built with a specific strategic plan for one organization. It is done to achieve harmony between Information Systems/Information Technology and the company's business. Information system architecture and information technology play an important role in companies looking for profits, such as in the industrial sector (Faslah & Haris, 2017; Rusi & Ferdy Febriyanto, 2021). The Information System and Information Technology (IS/IT) used is one of the tools used to create this information system architecture, TOGAF ADM (The Open Group Architecture Framework Development Method) (Almunadia et al., 2019; Widayat & Mardiyanto, 2018). TOGAF, as a tool, is expected to produce a strategy to deal with this risk. The TOGAF method was chosen because it has a detailed and open source framework that can be used by every organization to build an Enterprise Architecture (EA) that suits the needs of the organization, not only that TOGAF also has the advantage of being flexible and open source (Fitriansyah et al., 2017; Marini et al., 2020). This method focuses on infrastructure and the ADM (Architecture Development Method) cycle, which is more flexible to the conditions of the CV. Suien Insan Persada company.

Several previous studies have shown that The Open Group Architecture Framework Development Method is used in this research. The results of research on The Open Group Architecture Framework (TOGAFS as a framework for PT. X for designing enterprise architecture that produces a blueprint in information system development. Data sources are obtained from observations, interviews, and literature studies. Using TOGAF as a framework in planning and developing information systems is expected that PT. X can apply the right technology (Prianti & Papilaya, 2021; Purba et al., 2021). Another study that discusses the

strategic planning concept of Information Systems/Information Technology used in developing Information Systems/Information Technology in the public sector is TOGAF, by carrying out the stages in the Architecture Development Method (ADM). The results obtained in the strategic planning of Information Systems/Information Technology in the public sector, among others, namely that the developed Information Systems/Information Technology solution strategy is focused on business functions in public sector organizations using business modeling managed by organizations that have main activities and supporters (Almunadia et al., 2019; Widayat & Mardiyanto, 2018).

Information Systems/Information Technology strategic planning is identifying a portfolio of computer-based IS applications that will support an organization in implementing its business plan and realizing its business goals. Information Systems/Information Technology strategic planning studies the influence of Information Systems/Information Technology on business performance and contribution to the organization in choosing strategic steps. Enterprise architecture, better known as enterprise architecture, explains how an organization designs a system to support business and technological needs in realizing the mission and vision and achieving targeted results. Organizations can use the implementation of enterprise architecture. It is better if the organization adopts a method or framework that can be used in developing the enterprise architecture. So that with the enterprise architecture method, it is expected to be able to manage complex systems and align business and Information Technology to be invested.

4. CONCLUSION

TOGAF ADM in this study can provide benefits. It can be used to formulate information system strategic planning at CV. Suien Insan Persada. Obstacles found in implementing this research activity are financial data that is not openly obtained for reasons of company confidentiality. On the other hand, this data is needed for the analysis process using the TOGAF ADM method. The use of TOGAF ADM can solve problems in CV. Suien Insan Persada, because administrative management uses manual Microsoft Word recording, can be resolved by using TOGAF ADM. The use of TOGAF ADM can meet the demands for fast, timely, accurate information, and easier to manage after planning an enterprise architecture conceptually in the form of blueprints for data architecture, application architecture, and technology architecture. Thus, it is hoped that the enterprise architecture model can be used as a guide for developing information systems to support the company's business process needs. In the development of information systems, it is expected to pay attention to security, reliable system, and network performance and can help realize the goals, vision, and mission.

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