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Analysis and Strategic Planning of Information Systems Using the Togaf ADM Framework at PT Telekomunikasi Witel West Jakarta

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ABSTRACT

The Open Group Architecture Framework (TOGAF) method was used in this study to evaluate and plan the information system strategy for PT Telekomunikasi Witel West Jakarta. The background of this research is the need for companies to improve the effectiveness and efficiency of data-driven decision-making and operational monitoring. The research uses TOGAF to assess current conditions, identify key problems, and create architectural solutions that support the company's strategic goals. This research was carried out through several stages, including needs analysis, architectural planning, and solution evaluation. Research shows that the implementation of TOGAF can help companies build a more integrated and responsive monitoring information system to changes that occur in business. This study finds that the TOGAF approach provides a complete framework for planning and managing the transformation of sustainable information systems in companies.

Introduction

Companies or corporations tend to use information to realize their goals due to advances in information technology (Udayana, Legionosukmo, & Sundari, 2022). It is very important for any organization to create a very robust information management system, as information serves as a valuable asset for the business and has long-term utility (Priambodo & Suroso, 2023). An information system strategy that is executed effectively can generate significant benefits for the organization. This strategy revolves around a vision of the extent to which technology can effectively achieve the requirements of information systems (Pramudita, Arifin, Alfian, Safitri, & Anwariya, 2021). An information system strategy is urgently needed by companies to achieve commercial goals and increase the value of their cooperatives. Implementing this plan will result in profits for the company's operations and management (Hakim, Ghozali, Sugiharto, Nindyasari, & Jazuli, 2018).

Strategic planning refers to the deliberate actions taken by an organization to formulate a well-defined strategy and distribute resources effectively (Nugroho, 2016). The main emphasis is on developing effective resource allocation and future plans to achieve business goals. Corporations can optimize the use of SI/IT by developing a well-thought-out SI/IT strategy (Lawu, Ali, Bhayangkara, & Raya, 2022). To achieve the effectiveness of an information system planning process, it must begin by defining the business architecture of the existing organization (FIRMANSYAH, 2018)v. This is followed by determining the appropriate data and application architectures for use, so that the technology is built and implemented to support the system architecture requirements.

The demand for business operations is the main determinant for the utilization of information technology in business. This has resulted in a competitive environment among companies to adopt information systems, leveraging technologies that prioritize immediate requirements and enable the deployment of redundant systems. As a result, these systems are custom-built and lack integration.

Previous research by (Indey, Hartomo, & Sembiring, 2022) entitled "Strategic Planning of Information Systems Based on the Zachman Framework at the West Java Provincial Directorate of Transmigration". The findings of this study involve the development of an information system strategic plan of the Directorate of Transmigration of West Java Province (Hizbullah & Salmin, 2021). The findings are presented in a table detailing the approach to developing information systems in accordance with the objectives, vision, and requirements of the Directorate of Transmigration. This study uses the Zachman Framework methodology (Uribe & Feinberg, 2020). This task covers a wide range of aspects and viewpoints, requiring an in-depth understanding and sufficient duration to complete. In addition, when applied in practice, there are many obstacles that need to be addressed, especially if there is not enough help from adequate resources. The research is titled "Strategic Planning of Sales Information Systems Using the Togaf Adm Approach (Case Study: Three Sister's House Of Beauty)". The research focuses around The House Of Beauty of Three Sisters, which currently faces many challenges in data management and commercial strategy (Destyarini & Tanaamah, 2021). The findings of the study show that the implementation of TOGAF ADM can improve the development of information system strategies for this business, making it more effective, cohesive, and aligned with the desired goals. In addition, the company's process in terms of selling and promoting products on social media. The TOGAF technique provides the advantage of providing a systematic and structured approach to developing enterprise architectures (Manuputty & Wijaya, 2013).

The objectives of this study are:

1. Produce a strategic plan for an information system that is integrated through the use of the TOGAF ADM Framework.
2. Produce a blueprint that includes the design of the system architecture and requirements to ensure that the information system is well integrated in support of the company's business strategy.

Method

Research Object

PT Telkom Indonesia (Persero) Tbk (Telkom) is a government-owned enterprise (BUMN) operating in the information and communication technology (ICT) services sector and telecommunication networks in Indonesia. PT Telekomunikasi Indonesia Tbk, also known as Telkom Indonesia or Telkom, is a comprehensive telecommunications company and a leading provider of telecommunications networks and services in Indonesia.

Population and sample

1. Population

PT. Telkom Indonesia West Jakarta employs around 500 people. However, this study specifically focused on the population of 100 employees from PT. Telkom Wital West Jakarta which directly utilizes the information system.

2. Sample

This study uses a Non-Probability Sampling strategy, namely Convenience Sampling. This technique was chosen because it was easily accessible to relevant participants, i.e. managers and employees who were available during the study. Convenience sampling allows researchers to quickly collect data from sources that are easily accessible and willing to participate in research. While this method may not accurately represent everyone, it nonetheless provides helpful and practical insights. One of the main advantages of using this method is the efficiency of the time and resources required to obtain data relevant to the research subject. There are 100 employee samples used in this study.

Data Collection Techniques

The data collection procedure refers to the specific efforts that are carried out to gather the information necessary to address the research challenges. To ensure the accuracy and reliability of data, it is essential to utilize valid data collection technologies and adhere to certain criteria in the data acquisition process.

Observation

Direct observation was carried out to obtain information related to the content of PT. Telkom Indonesia in West Jakarta. This observation is carried out in order to understand and analyze the issues that arise.

Interview

This method requires obtaining information about PT. Telkom Indonesia West Jakarta through the use of questions and responses or face-to-face conversations with managers and staff. It is beneficial to get information from individuals who understand and have the necessary expertise.

Data Analysis Methods

Researchers conduct qualitative data analysis to find out how the relationships between variables work, which can then be used to find answers to research problems. The relationship between semantics is very important because researchers do not use numbers for quantitative analysis. Processing and analyzing collected data into structured, systematic, and organized, and meaningful data is the basis of qualitative data analysis techniques.

Results and Discussion

Defining the current business architecture

Information system-based business solutions can be found by identifying current conditions. As shown in the following attached table:

Table 1
Identify current conditions

It	Business Activities	Problems	Solution	Type of Service
1	Acceptance of Service Requests	High service requests can lead to backlogs and longer response times.	Investments in scalable digital platforms such as cloud-based systems to increase processing capacity.	-Broadband Internet Service/ Indihome -Customer Service and Billing
2	Maintenance and Technical Support (Operation)	Disrupted services, such as slow or disconnected internet, can be caused by network disruptions. As well as slow response: Customers may be dissatisfied due to slow responses to technical issues and glitches.	Implement a real-time network monitoring system to detect and deal with outages before customers are aware of them.	Routine maintenance schedules that use automated monitoring systems to find repair needs before breakdowns occur to ensure optimal functioning of network and hardware infrastructure.
		The process of recording and reporting the completion of valins data validation is still manual	Automation of the use of information system applications in the process of recording relevant data.	Procurement of an integrated Valins data logging application
		The process of recording	Automation of the use of information	Procurement of integrated

		housekeeping monitoring data the daily provisioning process is still manual	system applications in the process of recording data, housekeeping, monitoring, provisioning process.	provisioning Housekeeping data logging applications
3	Human Resource Management	There is a lack of effective communication between employees and management, so the process to ensure the attendance of employees who are WFO (Work From Office) and WFH (Work From Home) is still done manually.	Utilization of software to automate the process of monitoring employee attendance	Employee application procurement
4	Marketing and Sales	The company is already using digital marketing. But for competition from other telecommunications companies that offer comparable services at competitive prices.	By using market analysis tools and surveys to find out the needs of consumers and the position of competitors.	There is already digital marketing with various media. One of them is Instagram.
5	Service	Customers experience long wait times for help or resolution of their problems.	Use chatbots and automated queue systems to handle initial requests and direct them to the right employees.	Procurement of 24/7 customer support and troubleshooting services

This business process is described with the BPMN tool. Below is an explanation of the current business process at PT Telkom Indonesia West Jakarta.

Service Request

PT Telkom customers request services through various means, such as call centers, websites, or applications, as depicted in Figure 4.3 Customer Service verifies customer data and ensures that all required data is correct. Before being sent to the next meeting, a new customer service report is generated and submitted to ensure compliance and accuracy (Anu, 2022). Team Leader Area generates customer service reports and assigns Work Orders (WOs) to the appropriate technology. Then, for scheduling and employee management, Work Orders are assigned to the appropriate technology by BIMA Information Systems. The new service process ensures that customers receive service quickly and consistently. In addition, this process allows the use of all available resources and ensures a high quality of service and a positive customer experience.

Developing enterprise architecture for the future

After the business architecture planning is completed, the BPMN tool is used to describe the upcoming business process. After conducting business architecture planning, several business processes have undergone changes at PT Telkom Indonesia West Jakarta (Andrianti, Astri, Aryani, & Novianto, 2021). Eventually, process steps that reduce efficiency and effectiveness will be replaced with more computerized processes that are easier for users to ensure customer satisfaction. The replacement process will be marked with a blue box. Each image below will describe the upcoming business operations that the company will undertake.

a. Service Request

The upcoming business process for new service installation requests is that Customer Care can automatically review new request reports, and the Provisioning and Migration Helpdesk can receive automated reports indicating that there are issues in the installation of new services and need to be resolved immediately.

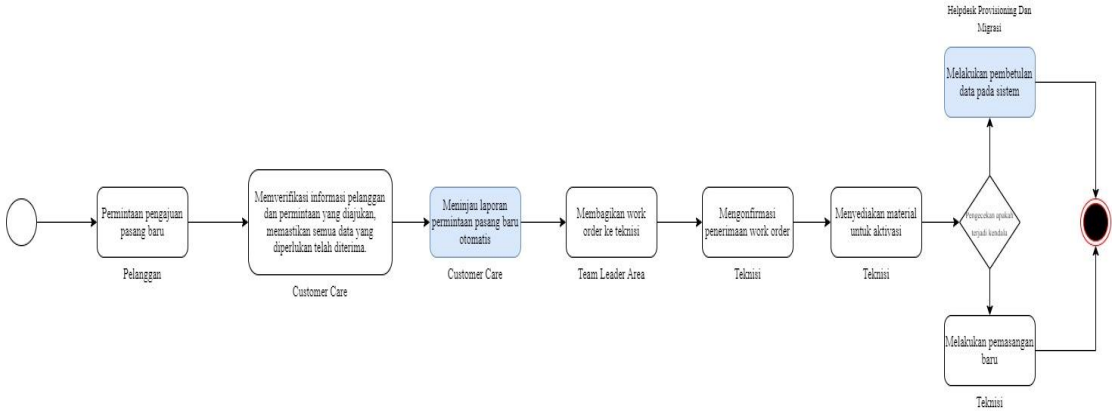

Figure 1
Business Process of Proposed Request for Installation of New Services

b. Maintenance and Technical Support (Operation)

The upcoming business process for maintenance and technical support is Helpdesk Assurance automatically reviewing outage reports to later be forwarded to the area team leader so that they can share work orders and immediately complete the fix of this problem.

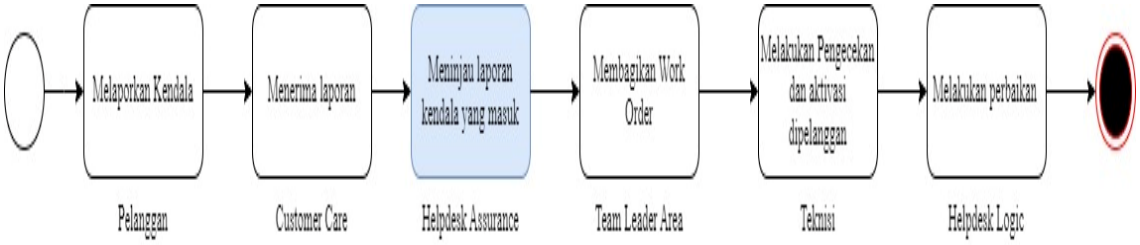

Figure 2
Business Process Proposed Maintenance and Technical Support

c. Personnel Monitoring

Judging from the current business process, the development of business processes for the future is that there will be a business process to monitor employee attendance through an attendance monitoring information system for the future. So that employees do not need to list in their respective unit groups. This system is useful for supervising employee attendance.

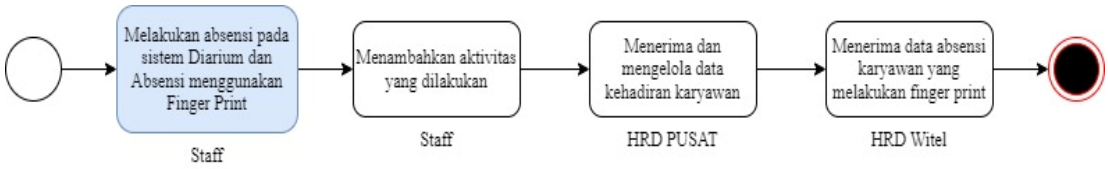

Figure 3
Business Process of Proposed Personnel Monitoring

d. Marketing and sales services

The upcoming business process for the marketing and sales process of services is improved on subscription requests, customer services that can automatically review service installations, as well as prepare and send invoices for customers automatically.

Future Business Strategies

To achieve the vision and mission of PT. Telkom Indonesia West Jakarta, various business strategies have been designed to optimize the company's performance and increase its competitiveness in the telecommunications market. Each strategy is designed to target critical areas that need improvement and improvement, and is combined with gap analysis to ensure optimal target achievement.

One of the key strategies to transform manual business processes into digital automation is the digitization of business processes. This is expected to increase operational efficiency and accuracy. Based on the analysis of current conditions, many business processes are still carried out manually, such as the use of google sheets. To overcome these differences in technology and processes, companies can redesign their processes and adopt new technologies to be able to integrate with more efficient digital systems.

PT Telkom Indonesia West Jakarta can also improve IT infrastructure for more efficient services. Companies can collaborate with technology companies to develop and provide innovative digital services. The company will also prioritize human development and innovation, to develop innovative solutions. The company will expand its market reach. The company will also focus on digital transformation, leveraging digital technologies across business operations and leveraging big data and analytics for faster decision-making.

Companies can also design more flexible systems and improve their ability to adapt to technological and business changes because current conditions suggest that existing system architectures may not be flexible enough and that current systems and processes are less able to adapt to new technologies.

PT. Telkom Indonesia West Jakarta can use the TOGAF framework to design and implement a more efficient and competitive information system strategy by conducting an in-depth gap analysis.

GAP Analysis

TOGAF gap analysis is used to analyze the gap between current and future business architectures. Further details can be found in table 2.

Table 2
Business Gap Analysis

Category	Business Gap Analysis Findings
Browse	Limited communication channels between departments that can affect collaboration and strategy implementation.
Process	Certain processes may not be optimized effectively, which can lead to long cycle times and ineffective use of resources.
Tools	There are still automated processes
Information	The problem is to ensure that relevant information is easily accessible so that decision-making can be made quickly.

Current Conditions

The results of the study show that PT. Telkom Indonesia West Jakarta currently has several data entities in the Attendance, obstacle monitoring, and new installation applications. These entities are outlined in the Figure below:

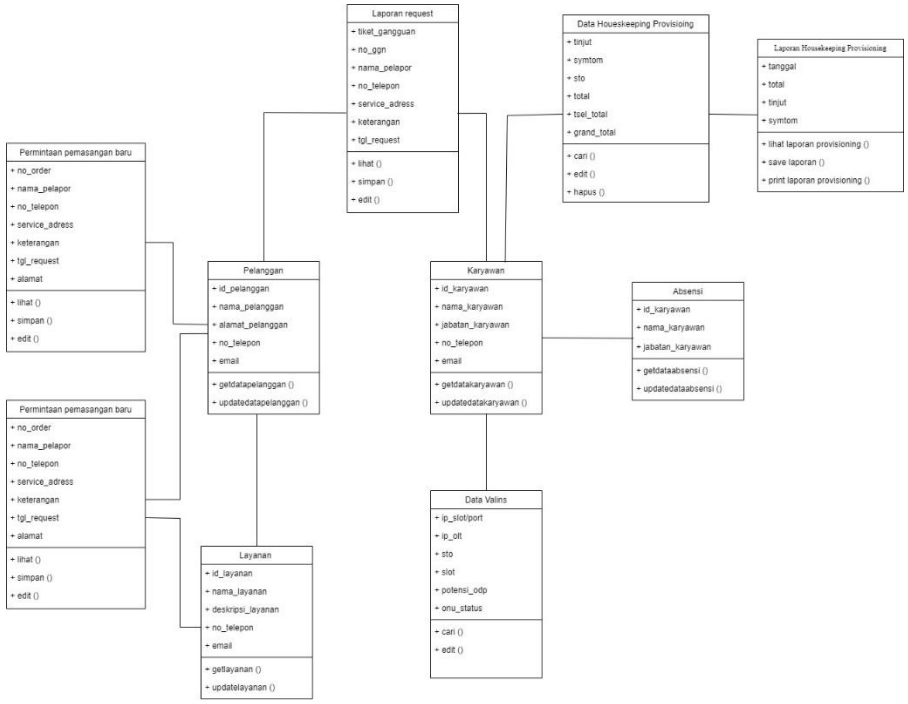

Figure 4
Current Class Diagram

Proposed Improvements

And compiling data manually at PT. Telkom Indonesia, West Jakarta. In this study, a diagram class is used to describe the data architecture of PT. Telkom Witel West Jakarta. The data architecture of PT. Telkom Witel West Jakarta can be depicted using a class diagram, and this involves identifying and identifying data modeling on applications used for PT. Telkom Witel West Jakarta. The data classes and their attributes are depicted in the diagram class below. The data architecture of PT. Telkom Witel West Jakarta is depicted in the following figure 4.7:

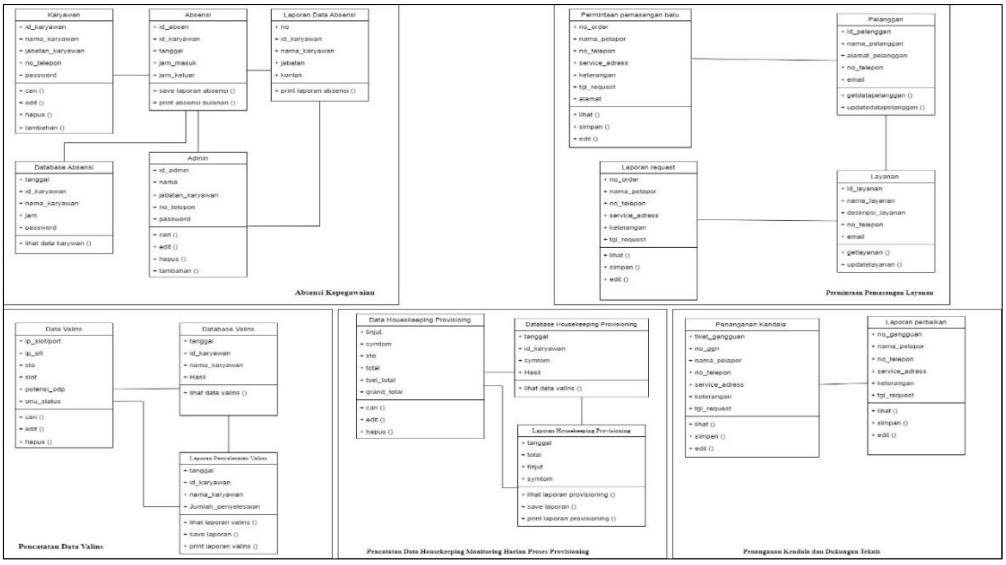

Figure 5
Class Diagram

There is a difference between the proposed data entity and the current one when compared. Data architecture today performs several business process activities without using information systems. There are 6 data entities in the current data architecture, but the proposed data architecture target would create 17 new data entities.

Data Linkage

An analysis of PT Telkom Indonesia's data architecture in West Jakarta shows that data entities are still being used in their current conditions for applications such as attendance, obstacle monitoring, and new installations. However, in the proposed improvement, PT Telkom Indonesia West Jakarta's data architecture must be improved by using a more comprehensive data model to support business processes more efficiently.

A comparison between the current conditions and the proposed target shows that the current data architecture has only 6 data entities and does not have adequate information systems to carry out many business process activities. On the other hand, the proposed data architecture has 17 new data entities that are more integrated and can meet a wider range of business needs.

All of these entities are connected through relationships, or relationships, which show how they interact in business processes. For example, a "Customer" entity may relate to a "Service" entity to indicate what services are used by that customer. In addition, entities such as "Report Requests" may also relate to the "Customer" and "Service" entities because each report request can originate from a customer and be associated with a particular service.

Simple applications to perform basic tasks such as monitoring attendance, monitoring constraints, and installing new services are limited to the interconnectedness of the data in today's existing data architecture. Data entities currently operate separately, making data integration and analysis ineffective. Conversely, the interconnectedness between data entities will be more structured and complex in the proposed data

architecture. For example, customer data will be linked to other entities such as services received, outage reports, and troubleshooting. This will allow for better data integration so that various data entities can support each other and provide a more complete picture for deeper analysis. It is hoped that this transformation will improve operational efficiency and the quality of services provided by PT Telkom Indonesia West Jakarta to its customers.

Future Business Strategies

To achieve the vision and mission of PT. Telkom Indonesia West Jakarta, various business strategies have been designed to optimize the company's performance and increase its competitiveness in the telecommunications market. Each strategy is designed to target critical areas that need improvement and improvement, and is combined with gap analysis to ensure optimal target achievement.

One of the key strategies to transform manual business processes into digital automation is the digitization of business processes. This is expected to increase operational efficiency and accuracy. Based on the analysis of current conditions, many business processes are still carried out manually, such as the use of google sheets. To overcome these differences in technology and processes, companies can redesign their processes and adopt new technologies to be able to integrate with more efficient digital systems.

PT Telkom Indonesia West Jakarta can also improve IT infrastructure for more efficient services. Companies can collaborate with technology companies to develop and provide innovative digital services. The company will also prioritize human development and innovation, to develop innovative solutions. The company will expand its market reach. The company will also focus on digital transformation, leveraging digital technologies across business operations and leveraging big data and analytics for faster decision-making.

Companies can also design more flexible systems and improve their ability to adapt to technological and business changes because current conditions suggest that existing system architectures may not be flexible enough and that current systems and processes are less able to adapt to new technologies.

PT. Telkom Indonesia West Jakarta can use the TOGAF framework to design and implement a more efficient and competitive information system strategy by conducting an in-depth gap analysis.

PT Telkom Indonesia West Jakarta has the ability to improve operational efficiency, expand digital services, drive innovation, and achieve a comprehensive digital transformation while remaining focused on sustainability and social responsibility through this business strategy.

Conclusion

Taking into account the data collected and the results of the analysis carried out on PT. Telkom West Jakarta. There are several problems in business and IT faced by PT

Telkom Indonesia West Jakarta. Internally, the company's key strengths include extensive network infrastructure, a large customer base, and a strong reputation in the telecommunications industry. However, the company has some drawbacks, such as complex business processes and a lack of data integration between departments.

Although PT Telkom Witel West Jakarta has built an IT system in each division, the provisioning process is still done manually using Microsoft Excel or Google Sheets. This shows that the existing system has not supported the company's business performance optimally.

To address this issue, the company has adopted the TOGAF (The Open Group Architecture Framework) framework. This framework aims to develop and implement more efficient and integrated information systems, which will improve the company's management and operational capabilities. Needs analysis, development of data architectures, applications, and technologies that fit business needs are all part of these strategic steps.

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