IJEBAS
INTERNASIONAL JOURNAL OF ECONOMIC, BUSINESS ACCOUNTING, AGRICULTURE MANAGEMENT AND SHARIA ADMINISTRATION

STRATEGY FOR IMPLEMENTING THE EFFECTIVENESS OF PERSONNEL SERVICES BASED ON INFORMATION TECHNOLOGY

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Received : 2024-10-10 Published : 2024-12-30 DOI : 10.54443/ijebas.v4i6.2150
Accepted : 2024-11-30

Abstract

In this modern era, talking about information technology is no longer a new thing. Information technology has become an integral element in everyday life and plays an important role in supporting various human activities. Many organizations compete to create applications to solve various problems faced. Every time a new problem arises, applications are often considered the main solution that can be relied on. However, this tendency can cause new problems. The applications created sometimes overlap and cause data redundancy and increase the volume of work, so that information technology created to make work easier on the other hand actually adds to the work. This study discusses how to align business strategies and information technology so that the information technology used can make work more effective and efficient. This study uses TOGAF as the main tool to create the right information technology management strategy. This study found that integrated information technology can be used as a solution to reduce redundancy.

Keywords: information technology management, redundancy, alignment strategy, integrated information technology

1. INTRODUCTION

The increasing number of applications within an organization can cause another problem, namely increasing the workload. This shows that information technology implementation solutions need to be considered more carefully, to avoid the emergence of new problems in the future. Information technology is a technology related to data processing into useful information to support decision making in various fields, such as business, government, and education (Suyanto RB, 2003). Information technology aims to support human activities in obtaining, processing, storing, and disseminating information in an effective and efficient manner (Onno, 2000). Integrated information technology is a system that combines various information and communication technologies to provide accurate, relevant, and timely information for management in decision making (Mulyadi, 2007).

2. LITERATURE REVIEW

2.1 Strategy

Strategy is a series of decisions and actions designed to achieve organizational goals in a dynamic and competitive environment (Widiatmoko, 2018). Strategy not only helps organizations plan and direct their efforts, but also ensures that strategy is the main key to improving operational effectiveness and long-term success of the organization. Effectiveness in the context of strategy is defined as the ability to achieve competitive advantage and generate value for stakeholders (Porter, 2019).

2. 2 Information Technology

Information Technology is a technology used to process data, including processing, obtaining, compiling, storing, manipulating data in various ways to produce quality information (Onno, 2000) . Information technology is a technology related to data processing into useful information to support decision making in various fields, such as business, government, and education (Suyanto RB, 2003). Information technology includes all forms of technology used to create, store, change, and disseminate information in all its forms. Information technology management is the management of information technology resources to improve the efficiency, effectiveness, and competitive advantage of an organization through system integration, strategic planning, and technological innovation (Laudon & Laudon, 2020).

2.3 Integrated Information Technology

The concept of IT integration includes the unification of various existing information and communication systems to improve coordination, data management efficiency, and information consistency (Turban et al., 2018). IT integration in an organization is not only about adopting technology, but also integrating it holistically into all operations and systems of the organization.

2.4 Enterprise Architecture

Enterprise Architecture (EA) is a framework used to unify various aspects of business and technology, enabling organizations to achieve higher efficiency, reduce system duplication, and maximize the use of information technology resources (Wibowo, 2021). EA Scorecard as an evaluation framework that helps organizations measure the success of enterprise architecture through specific key performance indicators, such as IT governance, cost optimization, and increased responsiveness to market changes (Hanschke, 2022). EA Scorecard is a tool used to assess and evaluate the implementation of Enterprise Architecture in an organization, focusing on various aspects of architecture such as business, data, application, and technology architecture (the open group, 2020). EA Scorecard helps organizations ensure that all components of the architecture function harmoniously and support strategic objectives.

2.5 The Open Group Architecture (TOGAF)

The Open Group Architecture (TOGAF *)* is a methodology used to design structured enterprise architecture and support the implementation of information technology-based business strategies (Hidayat & Setiawan, 2023). TOGAF ADM (Architecture Development Method) is a cycle methodology used to design and develop an enterprise architecture that is aligned with the business needs of the organization (Sutrisno, 2021). TOGAF not only focuses on information technology but also covers all business processes, organizational structures. TOGAF as an important tool for organizations to overcome the complexity of information system integration. Stages in TOGAF ADM can be seen in the following image:

Figure 2.1 1ADM

a. Preliminary

This phase focuses on the initial preparations before starting the architecture development, its main goal is to define the framework and architectural principles that will guide the entire process.

b. Phase A: Architectural vision

This phase is a very important initial stage in the architecture development cycle. This phase aims to formulate an initial vision of the architecture to be achieved. This is done by understanding business needs and setting goals.

c. Phase B: Business architecture

In *Business Architecture* , the business process architecture is designed to define the structure and operations of the business. The goal is to ensure that existing and proposed business processes are in line with the established architectural vision.

d. Phase C: Information system architecture

This phase focuses on developing an architecture that defines two major components in an organization's information system, namely Data Architecture and Application Architecture.

e. Phase D: Technology architecture

The focus of this phase is on the technology components that include the infrastructure, *platforms* , and technical services required to run applications and manage data in the organization. *Technology Architecture* ensures that the existing IT infrastructure, such as networks, hardware, and software are able to support business needs and applications effectively and efficiently.

f. Phase E: Opportunities and solutions

This phase focuses on connecting the architectural vision and solution realization through planning, developing implementation strategies, and identifying opportunities to enhance and optimize existing ones.

g. Phase F: Migration planning

The migration planning phase in TOGAF focuses on developing specific plans to evolve the organization from its current architectural state to the architecture that was defined and designed in the previous period.

h. Phase G: Implementation governance

The Implementation Governance phase in TOGAF is an important stage that ensures that the implementation of an architectural project runs according to the established architectural plans, standards, and principles.

i. Phase H: Architecture change management

The Architecture Change Management phase in TOGAF is a phase that aims to manage and control changes to the enterprise architecture after the implementation phase is complete and the architecture has been adopted by the organization.

3. RESULTS AND DISCUSSION

3.1 Preliminary phase

Based on the results of observations and interviews, organizational principles can be identified which can be seen in the table below:

Table 1 List of Personnel Service Applications

No.	Principle	Description	Objective
1.	Business Principle	1. Easy personnel services	More effective and efficient personnel services
		2. Make it easier to obtain personnel information	Speed up reporting
2.	Data Principle	1. Data is an asset	Personnel Data is an asset that must be managed well
		2. Data is shared and integrated between applications	Personnel data and information can be obtained

			quickly and easily.
3.	Application Principle	1. Easy to use information system	The information system can be used easily by all employees
		2. Applications can be developed	Existing applications can be developed without creating new applications.
4.	Technology Principle	1. Fast internet access	Fast internet network to make it easier to access personnel applications.
		2. Hardware	Availability of supporting hardware to support applications such as laptops, printers and scanners

4. Identify 5W + 1H

Identification of 5W + 1H in this stage serves as a guide to understand the strategic and operational context in developing information technology in personnel services. The 5W+1H approach in this phase can be seen in the following table:

Table *2* Identification of 5W + 1H

No.	*Driver*	Description
1.	What	Object: Effective information technology strategies Description: Creating an effective information technology strategy in personnel services
2.	Who	Object: Who prepares and is responsible Description: Statistics, Crime and Information Technology Data (Daskrimti) and Personnel Section
3.	Where	Object: Location of research object Description: Personnel Sub-Division of the North Sumatra High Prosecutor's Office
4.	When	Object : Design Time Description: 2024 to 2026
5.	Why	Object: Developing an effective information technology strategy Description: Developing information technology strategies in personnel services
6.	How	Object: How the strategy is prepared Description: Using the TOGAF (The Open Group Architecture Framework) ADM (Architecture Development Method) *framework*

3.2 Phase A: Architectural vision

The vision determined in the preparation of an effective information technology strategy on the object being studied provides recommendations for opportunities and solutions for the development of information technology in supporting personnel service activities by utilizing opportunities and solutions in TOGAF ADM and providing recommendations for an implementation plan for the development of information technology using migration planning in TOGAF ADM.

3.3 Phase B: Business architecture

Based on observations made, the personnel service process is grouped into two groups, namely main activities and supporting activities which can be seen in the *Value Chain diagram* as follows:

Supporting Activities	Data collection and presentation	
	Personnel Reporting	
Main activities	Employee	Personnel Sub-section
	- Making a Proposal - Complete the required documents	- Verification of completeness of proposed documents - Request for employment certificate - Distribution of proposals

Pelayanan Kepegawaian

Figure 1 Value Chain Diagram of Personnel Services

From each activity in the *value chain diagram* above, the following analysis is carried out:

Table 3 Analysis of Problems in Personnel Service Activities

No.	Activity	Problem Identification	Source of the Problem
1.	Making a Proposal	Required documents are uploaded to the application each time a request for personnel services is submitted.	Personnel data is not yet integrated
2.	Verification of completeness of proposal	Verification is carried out by checking the required documents one by one.	Some documents uploaded to the application are scans by the employees themselves and therefore require verification.
3.	Request for employment certificate	Speed in obtaining employment certificates	The personnel data and supervisory data that form the basis for issuing personnel certificates have not been integrated.
4.	Data collection and presentation	Data speed and accuracy	Data is taken from several applications that are not yet integrated.
5.	Personnel Reporting	Data entry is done manually	The reporting application is not yet integrated with other personnel applications.

3.4 Phase C: Information system architecture

This stage consists of two main parts, namely Data Architecture and Application Architecture. Data architecture is the development of a data model that includes the structure and relationships between data that support business operations. Application architecture focuses on the design of applications needed to support the business architecture. This includes mapping existing and proposed application systems. At this stage, the organization also identifies gaps between the current state and future needs related to applications and data.

Some of the applications that are currently used in personnel services are as shown in the following table:

Table 4 Application Architecture

No.	Application	Function
1.	Simkari	Managing personnel data
2.	MySimkari	Manage personnel data and make personnel service proposals
3.	Mobile Attendance	Managing attendance data
4.	SiASN	BKN services in managing personnel data
5.	e-LHKPN	KPK services in reporting LHKPN (State Officials' Wealth Report)
6.	Djp-online	Tax reporting services

From several applications that are currently being used, an analysis can be presented according to the following observation results:

1. Each employee is required to fill in and complete the documents for each application;
2. Personnel services are carried out through the MySimkari application by each employee;
3. In submitting a proposal for personnel services, several documents are required as in the following table:

Table 5 Data architecture

No.	Document	Source
1.	Required documents	SIMKARI and MySimkari
2.	Employee Performance Targets	SIMKARI and MySimkari
3.	Diploma and Transcript	SIMKARI and MySimkari
4.	Evidence of LHKPN report	e-lhkpn
5.	Tax Report Evidence	Djp-online
6.	Employee Attendance Recapitulation	Mobile Attendance

3.5 Phase D: Technology architecture

From the observations made, several technological architectures that have been used by the objects studied can be stated as follows:

1. Hardware : PC/Laptop, Scanner, Printer;
2. Software: Windows Operating System, Office Applications (Microsoft Office);
3. Network: MAN (Metropolitan Area Network) and Internet.

The network technology currently used in personnel services can be seen in the following table :

Table 6 Applications and Technology Architecture

No.	Application	Devices	Network
1.	Simkari	PC/Laptop	MAN (Metropolitan Area Network)
2.	MySimkari	PC/Laptop	Internet
3.	Mobile Attendance	Mobile Phone	Internet
4.	SiASN	PC/Laptop	Internet
5.	e-LHKPN	PC/Laptop	Internet
6.	Djp-online	PC/Laptop	Internet

3.6 Phase E: Opportunities and solutions

Gap Analysis shows the gap between the current and proposed conditions. There are 3 (three) proposed solutions, namely *remove* , *retain* , and *modify* . The gap analysis for each architecture can be seen in the following table:

Table 7 Architecutre Information System Gap Analysis

No.	Current Architecture	Solution	Action Plan
1.	Simkari	Remove	Simkari module is already in Mysimkari module
2.	MySimkari	Modify	Integrated with Mobile Attendance Application, SiASN, e-LHKPN and djp-online
3.	Mobile Attendance	Retain	Maintenance
4.	SiASN	Retain	Maintenance
5.	e-LHKPN	Retain	Maintenance
6.	Djp-online	Retain	Maintenance

3.7 Phase F: Migration planning

Once opportunities and solutions have been identified the next step is to develop a migration plan. This migration plan describes the specific steps required to transition from the current architecture to the defined architecture.

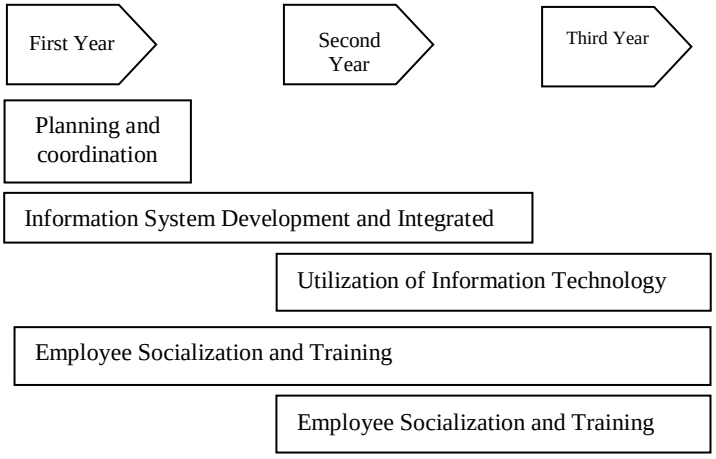

Figure 2 Information technology development roadmap

3.8 Risk analysis

Risk analysis is a process of systematically assessing the potential risks that an organization will face in an effort to achieve its goals, as well as the efforts made to manage these risks (Siahaan, 2016). One of the main benefits of risk analysis is increasing awareness of the potential risks faced by the organization (Suharto, 2020). The risks that may arise can be seen in the following table:

Table 8 Information technology migration risk analysis

No.	Risk	Impact	Probability	Impact of Risk	Mitigation Strategy
1.	System integration failure	The system is not functioning properly and the data is not integrated	Low	Big	Conduct integration testing in a gradual and comprehensive manner
2.	Human Resources	Employees are reluctant to learn new things	Currently	Currently	Conducting socialization and training
3.	Data security	Leakage of	Tall	Big	Implementing strict

		confidential data			cyber security and regular checks
4.	Changes in regulations and policies	Significant changes in information technology	Low	Currently	Adapting to regulatory developments and designing flexible information technology

3.9 Phase G: Implementation governance

At this stage, it is necessary to ensure that the information technology solutions implemented are in accordance with the architectural plan and organizational principles that have been established in the previous stage.

3.10 Phase H: Architecture change management

Change management of information technology proposed in personnel services is carried out in several applications as in the following table:

Table 9 Information Technology Change Management

No.	Application	Types of Changes
1.	Simkari	Wipe
2.	MySimkari	Integration

In the table above, it can be seen that the Simkari application is proposed to be deleted because most of the modules in the application are already available in the Mysimkari application.

3.11 Validation Test

Validation test was conducted using *the enterprise architectur scorecard method* by providing a questionnaire containing questions designed to test the validation of TOGAF research in the context of information technology-based personnel service improvement strategies. The questionnaire was designed by referring to several important aspects of TOGAF consisting of 16 questions. The questionnaire list was filled in by providing an assessment between 0, 1 or 2. The meaning of the value is as follows:

0 = If the mentioned component is not defined in this study;
1 = If the mentioned component is defined but not clearly described;
2 = If the components mentioned are clearly defined and described.

From the questionnaire of 10 respondents, the calculation results were obtained as in the following table:

Table 10 Enterprise Architecture scorecard questionnaire calculation

Business Architecture		**Data Architecture**		**Application Architecture**		**Technology Architecture**		**Total Score**	**AVERAGE**
Score	Percentage	Score	Percentage	Score	Percentage	Score	Percentage		
63	78.75%	64	80.00%	62	77.50%	61	76.25%	250	**78.13%**

From the table above, it is known that the total score of the entire questionnaire is 250 or 78.13%, this figure shows that the proposed information technology strategy is valid.

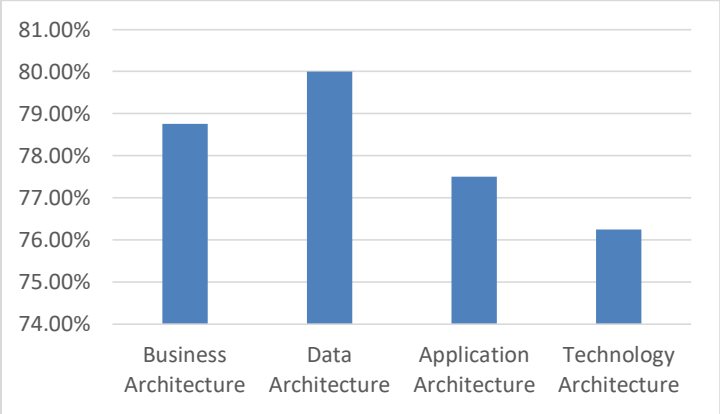

Figure 1Enterprise Architecture Scorecard graph

4. CONCLUSION

From the discussion conducted in the research, the following conclusions can be put forward:

1. An effective strategy for using information technology in personnel services can be implemented through integration of several applications so that no work is done repeatedly;
2. *Blueprint* of the TOGAF *Framework (The Open Group Architecture Framework*) as a strategy for implementing effective information technology.
3. For further research, it can be supplemented by making recommendations for cost estimates in the application development process.

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