

Enterprise Architecture Design at The Regional Revenue of West Java Province in Field of Revenue Control and Evaluation Using TOGAF

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Article Information

Article history:

No. 774

Rec. August 14, 2023

Rev. December 19, 2023

Acc. December 20, 2023

Pub. December 22, 2023

Page. 229 – 243

Keywords:

- Revenue Control and Evaluation
- TOGAF
- SPBE
- Enterprise Architecture

ABSTRACT

The use of information systems in electronic-based government systems (SPBE) has become the main focus in an attempt to enhance the quality of public services in Indonesia. Bapenda West Java Province is one of the organizations responsible for managing regional revenue and providing services to the public. This research aims to design an enterprise architecture in the Revenue Control and Evaluation Division of the West Java Provincial Revenue Agency using TOGAF. This research was conducted as an attempt to enhance the quality of public services through the implementation of information technology in the Electronic-Based Government System (SPBE). Currently, the evaluation of SPBE in West Java Province shows a "Good" predicate but still requires improvement. The method applied is the use of qualitative methods by conducting interview sessions and evaluations of stakeholders. The data collected includes guidelines for regulations applied in designing SPBE architecture, information about the West Java Provincial Revenue Agency, and evaluations of business processes and available data. This research findings suggest that there are several adjustments that need to be made in the business process of the Revenue Control and Evaluation Division of Bapenda West Java Province, as well as the importance of developing service architecture, data and information, and applications. Thus, this study intended to design an enterprise architecture blueprint and IT Roadmap that can increase the value of SPBE in West Java Province.

How to Cite:

Syaffa, N. I., et al. (2023). Enterprise Architecture Design at The Regional Revenue of West Java Province in Field of Revenue Control and Evaluation Using TOGAF. Jurnal Teknologi Informasi Dan Pendidikan, 16(2), 229-243. <https://doi.org/10.24036/jtip.v16i2.774>

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1. INTRODUCTION

In recent years, almost all aspects of life have used information technology. With the rapid development of technology, the government system in Indonesia is flocking to utilize this technology in the use of SPBE. Currently, the implementation of administrative processes in the use of information and communication technology should be set as a priority scale that must be developed by the government.[1]

SPBE is a system used by the government as an organization that can utilize information technology in providing services. The presence of SPBE is expected to increase the transparency of all service activities that occur, increase the comfort of SPBE users, and can minimize cost expenditures.[2] The regulation governing SPBE is Presidential Regulation No. 95 of 2018. One of the main reasons for the existence of SPBE due to the need for transparency management and the need to make changes in today's increasingly developing era.[3] By referring to the Evaluation Guidelines for Electronic-Based Government Systems contained in the Minister of Administrative Reform and Bureaucratic Reform Regulation Number 5 of 2018, it can be understood that periodic evaluations of SPBE need to be carried out to improve the quality of public services and work processes. The SPBE assessment predicates that can show the level of maturity of SPBE implementation taken from PANRB Regulation Number 59 of 2020 as can be seen from the Table 1 below.

Table 1. SPBE Index Value

Index Value	Predicate
4,2 – 5,0	Satisfied
3,5 - < 4,2	Very Good
2,6 - < 3,5	Good
1,8 - < 2,6	Simply
< 1,8	Less

Based on the study report on West Java Province's SPBE, the SPBE value of West Java Province shows a value of 3.28, which means it shows the predicate "Good". This shows that the SPBE value in West Java Province is not yet in the "Very Good" predicate. That way, it is necessary to increase the SPBE value of West Java Province through several success indicators to realize a government that is free of corruption, transparent, and can increase the effectiveness and efficiency of public service by carrying out enterprise architecture design for West Java Province Bapenda in the Revenue Control and Evaluation Division through the implementation of The Open Group Architecture Framework (TOGAF) ADM. TOGAF ADM applied as an enterprise architecture development. ADM is a method owned by TOGAF as the development of architecture design in the organization.[4] With that, this method can be done to plan, design, develop and implement THE architecture in Bapenda.[5] The outcome of this research is a blueprint for Enterprise Architecture.

2. RESEARCH METHOD

2.1. Development of a Conceptual Model

The use of a conceptual model is a comprehensive and logical orientation and association of everything that consists of the basic assumptions, frameworks, plans, strategies, and methods that will be used to carry out the research effort." [6]

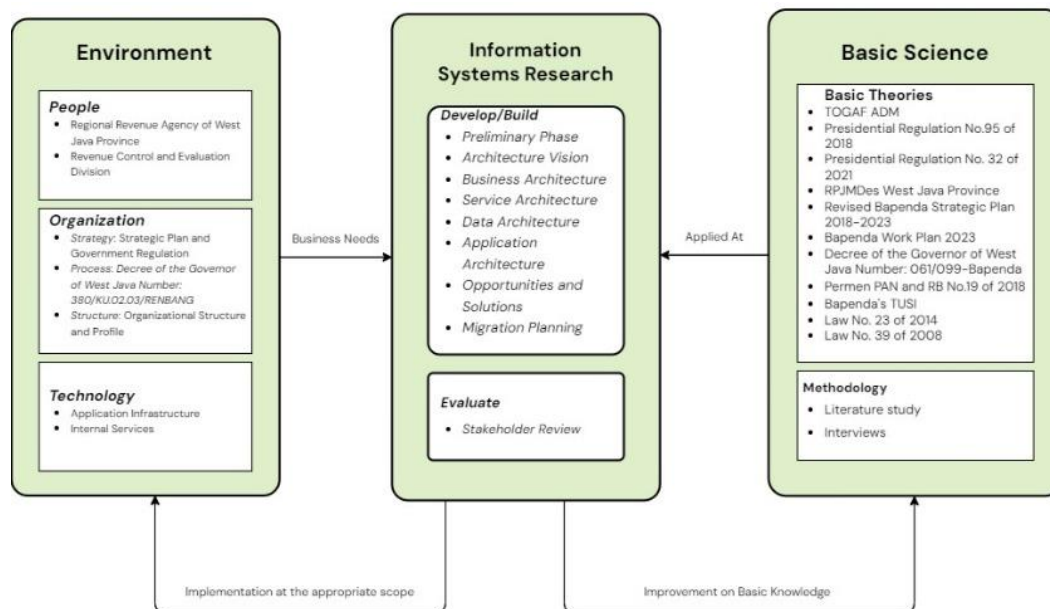


Figure 1. The Conceptual Model

2.2. Data Collection

Data collection is the most fundamental stage in research, because the main focus of research is to obtain data.[7] This stage used to solve and determine the main problems experienced by the object of research. This stage carried out by taking references from primary data and secondary data. Primer data was referred to base on observation and interview data on the object of this research. Observation in this study was carried out 5 times to obtain the necessary data using qualitative and quantitative aspects by making descriptive observations of relevant regional apparatus documents. The interviews in this study were semi-structured because the discussions were carried out flexibly so that the researchers provided space for the informants to understand completely about the topics to be discussed. Interviews in this study were conducted 5 times with 3 government employees. Researchers conducted interviews with 3 employees because they had more understanding of the topics raised by researchers. [8] Secondary data is research data

through intermediary media in the form of significant documents from object of research as research material.[9] Secondary data is obtained by collecting regional apparatus documents that are in accordance with the researcher's topic. In this study, the Systematic Literature Review method was used because researchers collected, evaluated and synthesized the literature comprehensively. The following Table 2 contains the data collection carried out.

Table 2. Data Collection

Data Type	Predicate
Primer Data	The results of direct interviews with the Division of Revenue Control and Evaluation at Bapenda West Java Province Observation results regarding the state of the Revenue Control and Evaluation Division at Bapenda West Java Province
Secondary Data	Strategic Plan Amendment of Bapenda of West Java Province 2018 - 2023 West Java Province Bapenda Work Plan 2023 Presidential Regulation Number 95 of 2018 PANRB Regulation Number 19 of 2018 TUSI of Bapenda of West Java Province Governor's Decree The Open Group ADM Framework

2.3. Data Management and Artifacts Development

At the data management stage, a description of the stages used in this research was carried out. There are four process stages used in processing data as follows.

1. Initiation Stage

The planning stage is the initiation stage that was first completed when conducting research. [10] This process completed to achieve the objectives of the research object planning. The first thing that will be implemented at this stage is to conduct a literature study on SPBE architecture design by exploring and learning the basic understanding and benefits, understanding the problems of several domains chosen as the focus of research and architectural design.

2. Identification Stage

The second stage that needs to be complete is the identification stage. The identification stage is the result of the initiation stage which is used as a description of the method when collecting the data needed in the research to design enterprise architecture.

3. Analysis and Design Stage

The analysis and design process starts with collecting the elements of the framework according to the requirements identified in the needs analysis conducted.[11] The third process in this research that aims to provide an SPBE enterprise architecture design target that is by applicable rules and the TOGAF ADM framework by making several changes tailored to the needs. The following Figure 2 is the framework of TOGAF ADM.

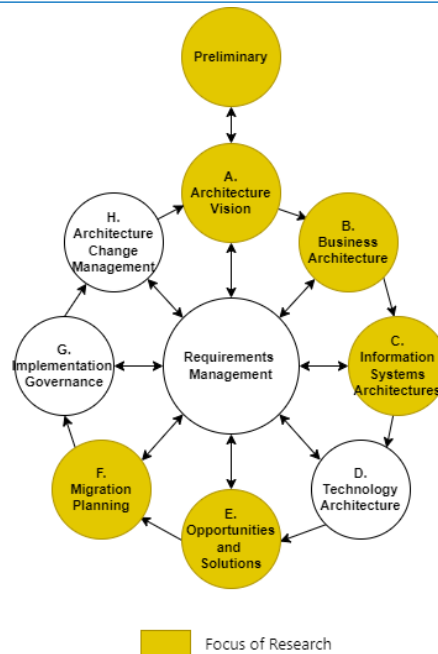


Figure 2. TOGAF ADM

The Open Group Architecture Framework ADM used for enterprise architecture development. ADM is a method owned by TOGAF as an architecture design development. ADM is also an element of the collaboration of architecture implementers in the Open Group Architecture Forum.[4] The method could be implemented to plan, design, develop, and implement the architecture in the organization. This framework was chosen based on research conducted by Cameron & McMillan, TOGAF obtained the highest score when compared to two other frameworks, namely Zachman Framework and FEA Framework which were assessed based on 12 criteria. [12]

4. Conclusions and Suggestions Stage

This final stage contains conclusions and suggestions from all stages of the research conducted.[13] This final stage has a purpose as an elaboration of the conclusion of the problems that exist in Bapenda. This stage will produce a document in the form of a blueprint that is used as a reference for the improvements made.

3. RESULTS AND DISCUSSION

3.1. Preliminary Phase

The initial stage outlines the readiness and commencement of necessary activities. to complete the business direction of the organization's architecture to achieve the business objectives of the enterprise architecture which includes the definition of the specific

framework of the organization's architecture.[14] This first phase of TOGAF ADM produces a principles catalog. The following Table 3 contains the principles catalog.

Table 3. Principles Catalog

Domain	Principle	Rationale
Business Architecture	Primacy of Principles	This is to maintain consistency, fairness and overall decision-making by ensuring the quality of information provided.
Service Architecture	Simplified	Simple services can facilitate all relevant stakeholders in carrying out their work activities by utilizing existing services.
Data and Information Architecture	Data is an Asset	Data in Bapenda West Java Province has valuable value because it can help the organization to make decisions. Managing data must also be careful because data is the basis for decision-making.
Application Architecture	Technology Independence	The application can be developed and improved effectively and efficiently due to the independence of the application from technology so that it can allow to relevant stakeholders to use the application effectively.

3.2. Architecture Vision

Architecture Vision contains architecture development procedures, contains information that explains the scope, identifies stakeholders, develops an architecture vision, and gets approval. In this phase, there are diagrams used for classification, analysis, and studying the various activities that make up the value of a product or service in use. The value chain diagram is used as a strategic tool to analyze activities that operate within the organization.[15] The following Figure 3 is a Value Chain Diagram.

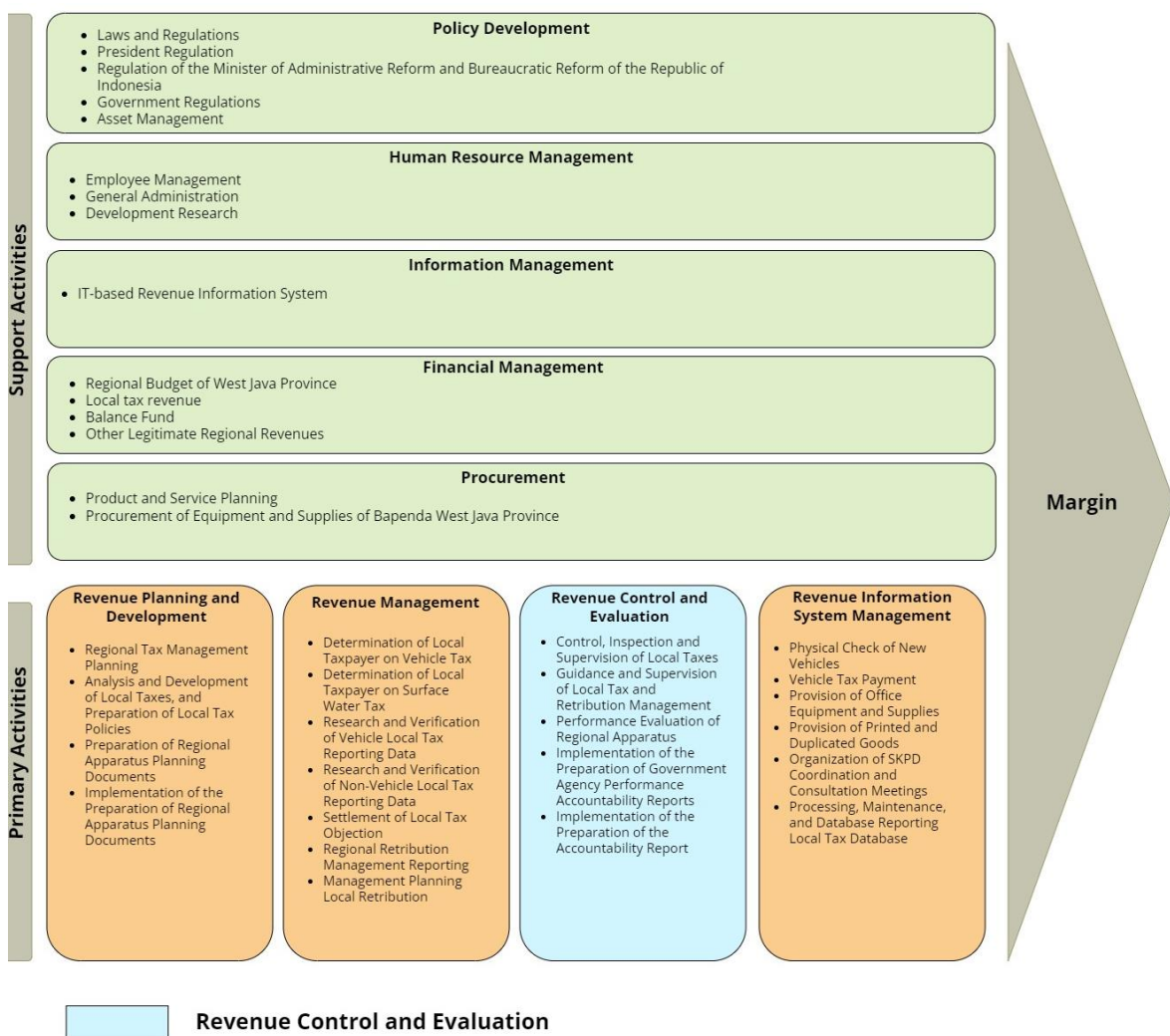


Figure 3. Value Chain Diagram

The diagram depicted in this phase is the Solution Concept Diagram which is used as a high-level orientation depiction of a solution that will apply to consider the objectives of architectural involvement.[16] The following Figure 4 is a Solution Concept Diagram.

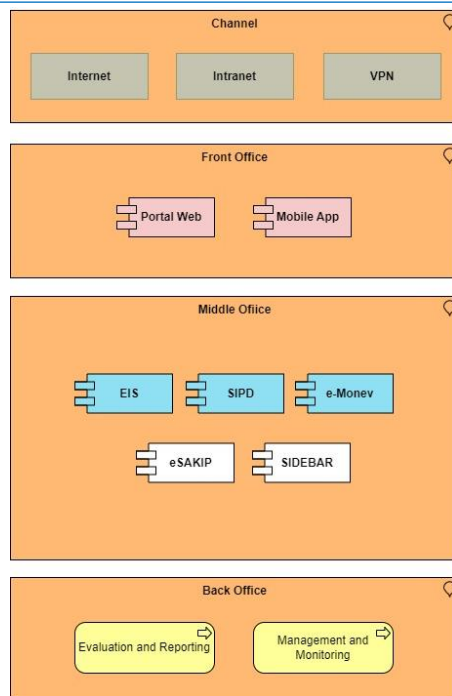


Figure 4. Solution Concept Diagram

3.3. Business Architecture

This stage describes how the organization runs to achieve its business goals including the needs of the organization.[17] The following Table 4 is a Goal/Objective/Requirement Catalog which contains a collection of information that describes the business functions or work units in the Revenue Control and Evaluation Division of Bapenda West Java Province.

Table 4. Goal/Objective/Requirement Catalog

Goals	Objectives	Requirement	Domain	Sub Requirement
The realization of Governance Revenue Regional Revenue Management that More Effective, Reliable and Accountable	Optimization Management Revenue Regional	Attempts to increase community participation in development through tax obligations on all structures and layers of society.	Business Architecture	Business processes include all stakeholders in holding responsibility for all available information management.
		Web-based and android/ios online samsat services for urban areas and mobile and channeling samsat services for rural areas.	Business Architecture	Business processes are focused on providing end-to-end services in order to increase application flexibility with easy and

			comprehensive access to information. Comprehensive use of applications in all business processes business process.
		Service Architecture	Services are easy to understand, follow and implement for both users and service providers.
	Attempts to manage data and analyze local tax insight with platform-based revenue and artificial intelligence.	Data Information Architecture	Data and Information are well-managed and contain important and valuable assets.
Optimization Quality Services Public	Attempts to improve communication between the government and taxpayers in the form of tax consultation services, complaints, tracking, tracing and tax publications based on communication technology.	Service Architecture Application Architecture	The service has the capability to encompass all business processes and applications. The applications used are capable of adapting to changes in existing technology and are not dependent on a particular technology choice.
	Collaborative efforts of the Province of West Java with the center, district / city and local tax stakeholders in managing taxpayer data, tax information systems and joint analysis and supervision.	Data Information Architecture	The use of data and information can be distributed thoroughly and well to all so that the use of data can be accessed according to the needs that exist in business activities.
		Application Architecture	Applications can be used easily to support business activities

The Business Footprint Diagram shows the relationship between business objectives, work units, business functions, services, and the mapping of technical component functions to achieve goals at Bapenda West Java Province.[18] The following Figure 5 is a picture of the Business Footprint Diagram.

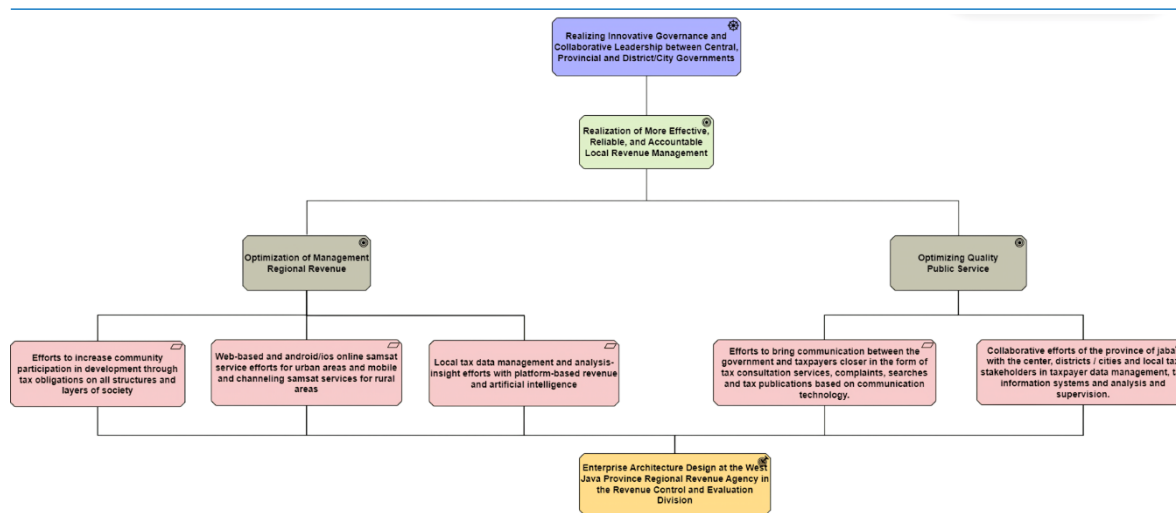


Figure 5. Business Footprint Diagram

3.4. Service Architecture

The service architecture describes the business processes, data, and applications contained in the Revenue Control and Evaluation Division.[19] The services used in this organization divided into two categories, namely government administrative services and public services. The following Table 5 is a service catalog used as a mapping of services in the Revenue Control and Evaluation Division.

Table 5. Service Catalog

Services in Provincial Government	Revenue Control and Evaluation Services	Support Applications	Services Provider
Regional Revenue Services	Regional Apparatus Performance Evaluation Service	1. EIS 2. SIPD	Revenue Control and Evaluation Division
	Implementation Services for the Preparation of Government Agency Performance Accountability Reports	1. EIS 2. SIPD 3. eSAKIP	
	Implementation Service for Preparation of Accountability Report	1. EIS 2. SIPD 3. e-Monev	

3.5. Data and Information Architecture

This stage contains a description of the variety of data needed by the organization in developing data and information. The data dissemination diagram is employed to illustrate the interrelationship among data entities, businesses, services, and application components.[20] Figure 6 is a diagram of data dissemination from the Division of Revenue Control and Evaluation of West Java Province Bapenda.

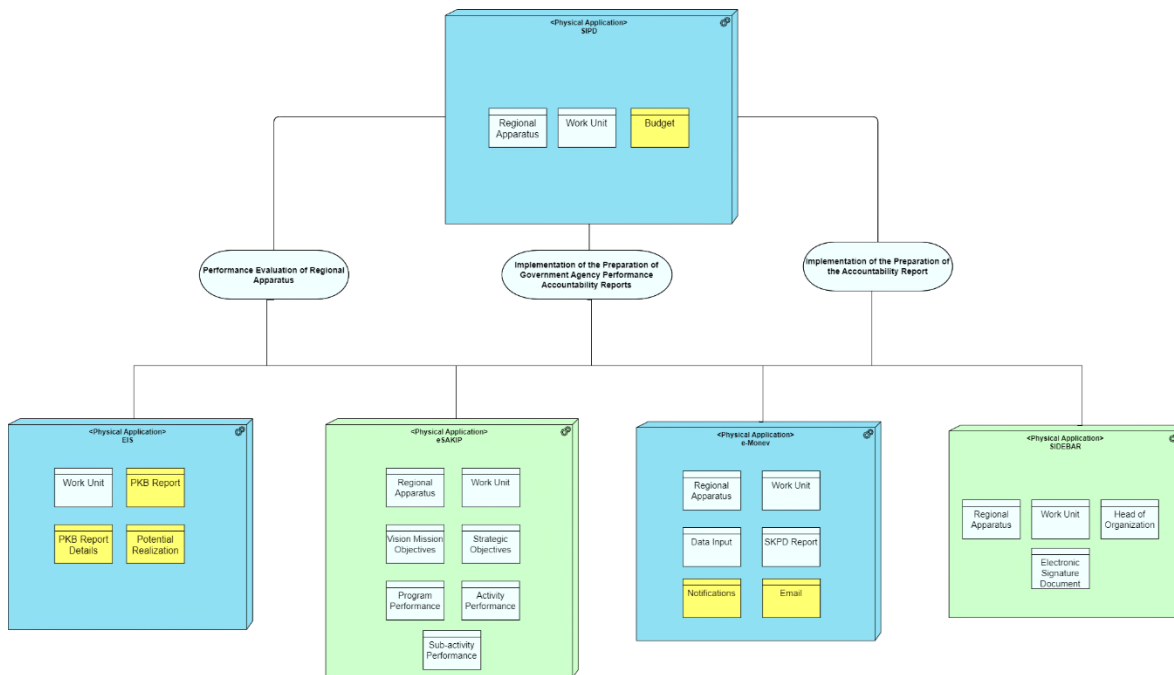


Figure 6. Data Dissemination Diagram

3.6. Application Architecture

This architecture is used to define and map interactions between applications used by organizations to carry out business activities, as well like manage data used in organizations. [21] The following Table 6 shows the application catalog.

Table 6. Application Catalog

Applications	Applications Description	Applications Provider	Related Work Units
Sistem Informasi Perangkat Daerah (SIPD)	A web platform that aims to integrate national references, regional planning and finance processes, financial planning assessments, performance and legal regulations evaluations, national and regional development and finance databases, and comprehensive regional data analysis.	Ministry of Home Affairs	Revenue Information System Management Division, Revenue Control and Evaluation Division, Revenue Management Division, and Revenue Planning and Development Division.
Executive Information System (EIS)	Executive Information System or EIS is a web-based monitoring application provided by Bapenda of West Java Province.		Revenue Planning and Development Division, Revenue Management Division, and Revenue Control and Evaluation Division

e-Monev	e-Monev is an instrument that facilitates the process of controlling and evaluating the development plan of West Java Province electronically.	Ministry of Home Affairs	Revenue Control and Evaluation Division
eSAKIP	The eSAKIP application is an electronic solution for evaluating the performance of government agencies in terms of performance accountability.	Ministry of Home Affairs	Revenue Control and Evaluation Division
SIDEBAR	The West Java Electronic Document Information System is an E-Office platform designed to make it easier for civil servants in the West Java Government to process, keep up with, and store Electronic Service Manuscript records digitally.	Regional Library and Archives Office of West Java Province	Head of Bapenda

3.7. Blueprint Enterprise Architecture

The Enterprise Architecture Blueprint serves as the basis for planning, modeling, and improving the performance of the entire organization.[22] The existence of a blueprint is expected to help the Division of Revenue Control and Evaluation in helping to develop the SPBE index value of West Java Province. Revenue Control and Evaluation Division in helping to develop the SPBE index value of West Java Province.[23] The following Table 7 contains an enterprise architecture blueprint at Bapenda.

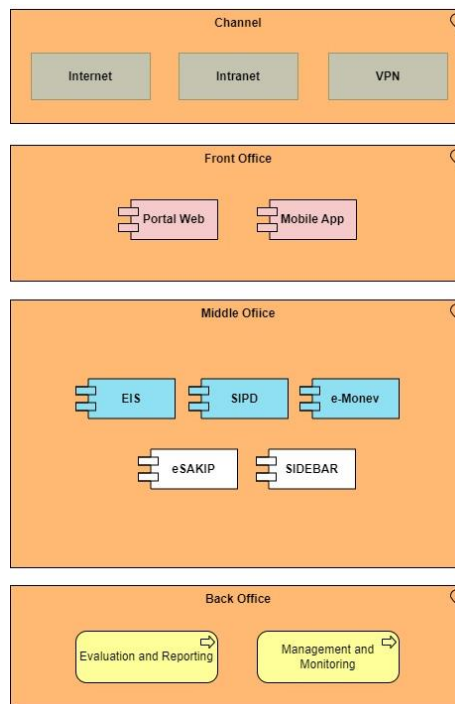
Table 7. Blueprint

ENTERPRISE ARCHITECTURE BLUEPRINT FOR REVENUE CONTROL AND EVALUATION DIVISION OF BAPENDA WEST JAVA PROVINCE	
SCOPE	STRATEGIC DIRECTION OF THE ORGANIZATION
<p>REVENUE CONTROL AND EVALUATION DIVISION</p> <p>BASIC GUIDANCE DOCUMENT</p> <ul style="list-style-type: none"> • Presidential Regulation on Electronic-Based Government System • President Regulation No. 95 of 2018 • Minister of PAN and RB Regulation No. 19 of 2018 • Law No. 39 of 2008 • Presidential Regulation No. 32 of 2014 • Law No. 23 of 2014 • Circular Letter of the Minister of PAN and RB Number 18 of 2022 	<p>Vision:</p> <p>The realization of West Java's inner and outer champions with innovation and collaboration</p> <p>Mission:</p> <p>Realizing innovative governance</p> <p>innovative governance and leadership, as well as collaborative between the central government provincial and district/city governments</p>
BUSINESS PROCESS ARCHITECTURE DOMAIN	SERVICE ARCHITECTURE DOMAIN
<ul style="list-style-type: none"> • Delineation of business process maps as regulated by PAN RB Ministerial Regulation No. 19/2018 • Redesign analysis of regional device performance evaluation business processes • Redesign analysis of the business process of implementing the preparation of government agency performance accountability reports 	<ul style="list-style-type: none"> • Design of Regional Apparatus Performance Evaluation Service • Design of Implementation Services for the Preparation of Government Performance Accountability Reports • Design of Implementation Services for the Preparation of Accountability Reports

- Analysis of redesign on the business process of implementing the preparation of accountability reports

DATA AND INFORMATION ARCHITECTURE DOMAIN	APPLICATION ARCHITECTURE DOMAIN
<ul style="list-style-type: none"> • Mapping of Data Entities in the SIPD application such as Regional Devices, Work Units, and Budgets • Mapping of Data Entities in the EIS application such as Work Units, PKB Reports, PKB Report Details, and Potential and Realization • Mapping of Data Entities in e-Monev application such as Regional Devices, Work Units, Data Input, SKPD Reports, Notifications, and Emails • Entity Mapping of eSAKIP application data such as Regional Apparatus, Work Units, Vision Mission and Goals, Strategic Goals, Program Performance, Activity Performance, Sub-Activity Performance, and LKIP. • Mapping of SIDEBAR application Data Entities such as Regional Devices, Work Units, Agency Heads, and Electronic Signature Documents 	<ul style="list-style-type: none"> • Development of the Budget feature by adding a download action to the SIPD application • Development of the PKB Report, PKB Report Details, and Potential and Realization features by adding a document download action so that the Revenue Control and Evaluation Division work unit can download documents in the EIS application. • Addition of Notification and Email features to the e-Monev application.

**ARCHITECTURE VISION
(SOLUTION CONCEPT DIAGRAM)**



4. CONCLUSION

This Enterprise Architecture design research is focused on the Regional Revenue Agency, especially in the Revenue Control and Evaluation Division. The result of this research is a blueprint for Enterprise Architecture in the Revenue Control and Evaluation Division. This design uses TOGAF best practice in designing architecture domains starting from the Preliminary phase, Business Process Architecture phase, Service Architecture phase, Data and Information Architecture phase, and Application Architecture phase in accordance with what has been standardized by the Electronic Based Government System. It is expected that further research can include Infrastructure architecture and security architecture in accordance with related government documents in order to become a complete and comprehensive architecture.

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