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ENTERPRISE ARCHITECTURE DESIGN ON IMPROVING DISKOMINFO SERVICES IN CENTRAL LOMBOK REGENCY USING TOGAF 9.2

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Abstract: Currently, the increasing needs of the community to obtain efficient, effective, transparent and accountable public services. Various applications are designed in order to realize a transparent work system of accountable funds and an increase in work processes that are fast, precise, and accurate. Therefore, local governments are now developing e-Government or in the Indonesian government known as the Electronic-Based Government System (SPBE). In running SPBE, the Central Lombok Regency Government, especially the Department of Communication and Informatics, participates in developing SPBE, one of which is in the Informatics Application Division which has an Informatics Application Management Program. This research aims to support SPBE-based informatics application management services for OPDs in Central Lombok Regency and the public. This SPBE design adopts the TOGAF 9.2 approach, and is also adjusted to the Presidential Regulation on Electronic-Based Government Systems in designing. This research focuses on the Informatics Application Management Program with business process architecture domain, service architecture domain, data and information architecture domain, application architecture domain, and technology (infrastructure) architecture domain. The result of this research is a blueprint that will be used as a solution or support for the running of SPBE in the Informatics Application Management Program.

Keywords: electronic-based government system, department of communication and informatics, informatics application management program, togaf 9.2

Abstrak Saat ini, meningkatnya kebutuhan masyarakat untuk mendapatkan pelayanan publik yang efisien, efektif, transparan dan akuntabel publik. Berbagai aplikasi di rancang agar dapat mewujudkan sistem kerja yang transparan dana akuntabel serta adanya peningkatan proses kerja yang cepat, tepat, dan akurat. Maka dari itu, Pemerintah daerah kini mengembangkan e-Government atau di pemerintahan Indonesia dikenal sebagai Sistem Pemerintahan Berbasis Elektronik (SPBE). Dalam menjalankan SPBE Pemerintah Kabupaten Lombok Tengah khususnya Dinas Komunikasi dan Informatika ikut serta mengembangkan SPBE salah satunya pada Bidang Aplikasi Informatika yang memiliki Program Pengelolaan Aplikasi Informatika. Dalam penelitian ini memiliki tujuan untuk menunjang layanan pengelolaan aplikasi informatika berbasis SPBE bagi OPD yang ada di Kab. Lombok Tengah dan juga publik. Perancangan SPBE ini mengadopsi pendekatan TOGAF 9.2, dan juga di sesuaikan dengan Peraturan Presiden tentang Sistem Pemerintahan Berbasis Elektronik dalam melakukan perancangan. Penelitian ini berfokus pada Program Pengelolaan Aplikasi Informatika dengan domain arsitektur proses bisnis, domain arsitektur layanan, domain arsitektur data dan informasi, domain arsitektur aplikasi, dan domain arsitektur teknologi (infrastruktur). Hasil dari penelitian ini yaitu suatu blueprint yang nantinya akan dijadikan solusi ataupun penunjang berjalannya SPBE dalam Program Pengelolaan Aplikasi Informatika.

Kata kunci: aplikasi informatika, program pengelolaan aplikasi informatika, enterprise architecture, togaf 9.2

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INTRODUCTION

In the context of increasing public demand for efficient, effective, transparent and accountable public services. Various applications are designed in order to realize a transparent work system of accountable funds and an increase in work processes that are fast, precise, and accurate[1]. In general, the utilization of ICT in supporting public services in local governments has been supported by the central government through national policies and strategies for e-Government development[2]. Based on the evaluation assessment through measuring the level of maturity using e-Government which refers to five domains, namely describing the business process domain, data and information domain, infrastructure domain, application domain, and integrated service domain. Local governments are now aggressively developing e-Government or in the Indonesian government known as Electronic Based Government System (SPBE).[3]

In the context of implementing the Electronic-Based Government System (SPBE) as mandated in Presidential Regulation No. 95/2018[4] and implementing the direction of the transformation policy in the field of institutions and governance which is a national development priority in Presidential Regulation No. 18/2020 concerning the 2020-2024[5] National Medium-Term Development Plan and Circular Letter of the Minister of PANRB No.18 of 2022 concerning the Integration of National Digital Services Through the Implementation of SPBE Architecture and SPBE Plan Map, it is necessary for central and regional government agencies to prepare their respective SPBE Architecture.[5]

SPBE implementation is one of the efforts to develop a government system. At this time the Communication and Informatics Office and SKPD in Central Lombok Regency still lack Human Resources who have technical expertise in the field of communication and information. As stated in the Central Lombok Regent Regulation Number 81 of 2016,[6] the Communication and Informatics Office (DISKOMINFO) of Central Lombok Regency is positioned as a supporting element of the Regent's duties led by a Head of Service under and responsible to the Regent through the Regional Secretary with the main task of assisting the Regent in carrying out Communication, Informatics, coding and statistics affairs which are the regional authority and assistance tasks assigned to the Regency. Based on the Achievement Target of the RPJMD for the Development of Electronic-Based Government Systems (SPBE) at the Communication and Informatics Service of Central Lombok Regency[7]. The development of communication and informatics facilities and infrastructure is included in the policies and strategies for developing a network system for regional facilities and infrastructure in Central Lombok Regency. When viewed from the two indicators of the Informatics Application Management Program, there are indicators that have been met, namely the percentage of Regional Apparatus (PD) using statistical data in compiling regional development planning.[6]

This research will focus on designing Enterprise Architecture (business process domain, data and information domain, infrastructure domain, application domain, and service domain) using the TOGAF framework at the Communication and Informatics Service (DISKOMINFO) of Central Lombok Regency, according to the 3rd Mission, namely

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"Easy, Fast and Clean Government General Services" on the Central Lombok Regency Government's target "Realizing Electronic-Based Government in supporting a good Bureaucratic System and satisfying Public Services". "[8]

METHOD

TOGAF is a very detailed method of building, managing and implementing enterprise architecture in an information system.[9] TOGAF can be used freely by any organization or company. TOGAF is a method that is easily accepted and developed in an organization or company because the method is very practical and precise[10]. The following Image 1 shows the phases of togaf

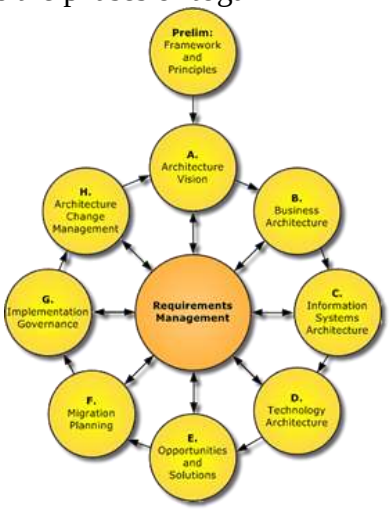

Image 1 Togaf Phases

The following is a brief explanation of the togaf phase above:

- Preliminary Phase
  In this phase the framework and methodology are clearly described and then used in the development of the architecture.
- Architecture Vision Phase
  The Architecture Vision phase is an activity that determines the scope of the intended architecture
- Business Architecture Phase
  The Business Architecture phase is the initial state of the business architecture.
- Architecture Information System Phase
  The Information System Architecture phase is further divided into two stages, namely data architecture and application architecture.
- Technology Architecture Phase
  The Technology Architecture phase aims to design the desired architecture that a company and organization wants.
- Opportunities and Solutions Define Phase
  The Opportunities and Solutions Define phase is a function determinant that is obtained from the architecture of an enterprise.
- Migration Planning Phase
  The Migration Planning phase is an assessment phase to determine migration plan of an information system.
- Implementation Governance Phase
  The Implementation Governance phase is the preparation of governance organization, information technology governance, and governance architecture.
- Architecture Change Management Phase
  The Architecture Change Management phase is the stage of establishing procedures for managing changes to the new architecture.

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RESULT AND DISCUSSION

Preminary Phase

The Preminary Phase is the initial phase in EA where in this phase decisions are made to later determine the principles used in the architecture domain to be developed. Furthermore, mapping is carried out to determine solutions such as the applications used and the technology that supports the running of these applications. [11]After that, mapping the stakeholders involved in it and determining the value that exists in the Communication and Informatics Office of Central Lombok Regency.

Table 1 Principles

Domain	Prinsip
Business Process	Primacy of Principles
Data and Infomation	Data is an Aset
Application	Technology Independence
Services	Sederhana
Infrastructure (Technology)	Responsive Change Management

Architecture Vision

The TOGAF 9.2 Architecture Vision phase begins with an initial stage that explains the importance of agreement on enterprise architecture planning.[12]. This stage produces the output of Value Chain Diagram.

Table 2 Value Chain

Value Chain	
Secondary Activities	
Infrastructure	• Government regulations of the Communication and Informatics Office of Central Lombok Regency • Local government regulations of Central Lombok Regency • Legislation
Human Resources	Digital Human Resources
Technology Development	• Digitalization of the economy • Digitalization of government
Procurement	• ICT infrastructure procurement • Internal infrastructure procurement
Primary Activities	
Informatics Application Management Program	• Information systems analyst • System and network management
Public Information and Communication Program	• Use of egovernment in Regional Apparatus Organizations • Maturity level management in the service domain
Sectoral Statistics and Information Security Program	• Statistical data management for Regional Apparatus Organizations • Management of government information security levels

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Business Process Architecture

This phase includes an analysis of the company's needs in carrying out its business functions, including how business objectives and interactions between parts of the company can be achieved[13]. Based on PermenPAN RB No. 19 of 2018 concerning the Preparation of Government Agency Business Process Maps.[14]

Level 1 is a more detailed stage in the depiction of level 0 business process maps. At this level, each process carried out by each process at level 0 is drawn in detail. [15], The following in Image 2 is a map of the levelling business process[16], at DISKOMINFO Central Lombok Regency.

Image 2 Proses Bisnis

Services Architecture

Service architecture is the output of one or more business processes presented to users by describing the characteristics related to government services[15]. The following is a service/business process matrix in table 3.

Data And Information Architecture

Data and Information Architecture is the third phase in TOGAF 9.2. This phase has the aim of maximizing the previous phases.[17] The following in Image 3 is the Dissemination data at DISKOMINFO Central Lombok Regency

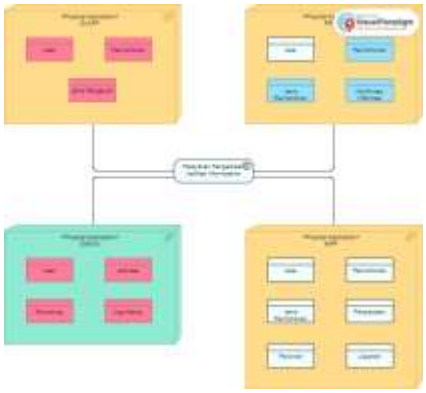

Image 3 Dissemination Data

Table 3. Service/business process matrix

Business Process (Y) / Work Unit (X	**Informatics Application Management**	**Information Systems Analyst**	**System and Network Manager**
DKA 01.01.01 Application submission	App Creation Service	N/A	N/A
DKA 01.02.01 Submission of Objection to Rejection of Information Request	Information and Documentation Management Services	N/A	N/A
DKA 01.02. 01 Application Development Submission	Application Development Service	N/A	N/A
DKA 01.02.02 Central Lombok District Licensing Online System	Online Licensing System Service	N/A	N/A
DKA 01.02.03 Monitoring of app usage in Central Lombok District	Application usage monitoring service	N/A	N/A

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Application Architecture

Application Architecture is a method to describe Application Architecture involves the process of defining interactions between applications or software with middleware, databases, and other applications that support the business functions.[18] The following is a catalog of applications in the Informatics Application Division in table 4.

Technology Architecture

Technology Architecture is one of the stages contained in Phase D of TOGAF 9.2. This stage focuses on developing the technology infrastructure needed to meet Data Architecture Standards and support Application Architecture.[19] The following in Image 4 is a Diagram of the Environment and Location at DISKOMINFO Kab. Central Lombok

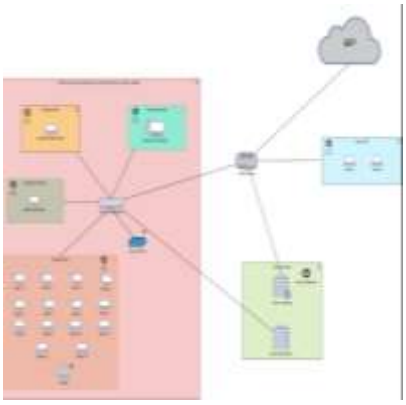

Image 4 Location Diagram

Blueprint Enterprise Architecture

The Enterprise Architecture Blueprint in this study aims to plan the transformation of the Komu-nication and Informatics Office of Central Lombok Regency. The business and technological change plans carried out aim to achieve the organization's long-term strategic plan[20]. The following is the blueprint Enterprise Architecture mapping that has been done at DISKOMINFO Kab. Central Lombok

Table 4 Application Division

Application Name	Application Description	Application Provider	Related Work Units
SI-APP	The SI-APP application is an application that is used to support if there is a request for the creation or development	Communication and Informatics Office (DISKOMINFO) Central Lombok District	Informatics Application Division DISKOMINFO Kab. Central Lombok
SI-PPID	The SI-PPID application is “Pejabat Pengelola Informasi dan Dokumentasi”	Central Bureau of Statistics	Informatics Application Division DISKOMINFO Kab. Central Lombok
MPP (Mal Pelayanan Publik)	MPP is Public Service Mall	Investment and Integrated Service Office One Stop (DPMPTSP)	Informatics Application Division DISKOMINFO Kab. Central Lombok
SIMON	The SIMON applicationis a monitoring applicationLombok.	Informatics Application Division DISKOMINFO Kab. Central Lombok	Informatics Application Division DISKOMINFO Kab. Central Lombok

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Table 5 Blueprint EA

Blueprint Enterprise Architecture Of Communication And Information Agency Of Central Lombok District	
Scope : Informatics Application Field	**Organizational Strategy Direction :** Vision : "Mewujudkan Masyarakat Lombok Tengah Yang Beriman, Sejahtera, Bermutu, Maju dan Berbudaya (Bersatu Jaya)" Mission : "Pelayanan Umum Pemerintahan Yang Mudah, Cepat dan Bersih."
Basic Directive Document : • Presidential Instruction No. 3 Year 2003 • PermenPan RB Number 19 Ta-hun 2018 • PermenPan RB Number 18 Year 2022 • RPJMD of Central Lombok Regency 2021-2026	**Business Architecture Domain :** • Relationship Map Update • Design of Level 0, 1, and 2 Business Process Maps • Redesign of business process level 2
Service Architecture Domain : Service design in the field of Informatics Application Management	**Data and Information Architecture Domain** • Mapping Data Entities with Business Processes and Applications • Data Conceptual Model Design • Design of Data Dissemination Model
Application Architecture Domain • Identify application functions related to the organization's business processes and data entities • Improving existing applications • Addition of new applications according to the needs of the organization	**Infrastructure Architecture Domain (Technology)** • Identify the standard technology used at the Central Lombok District Communication and Information Office. • Identify technology related to the application used. • Environment and Location Diagram Design • Designing Platform Decomposition Diagram

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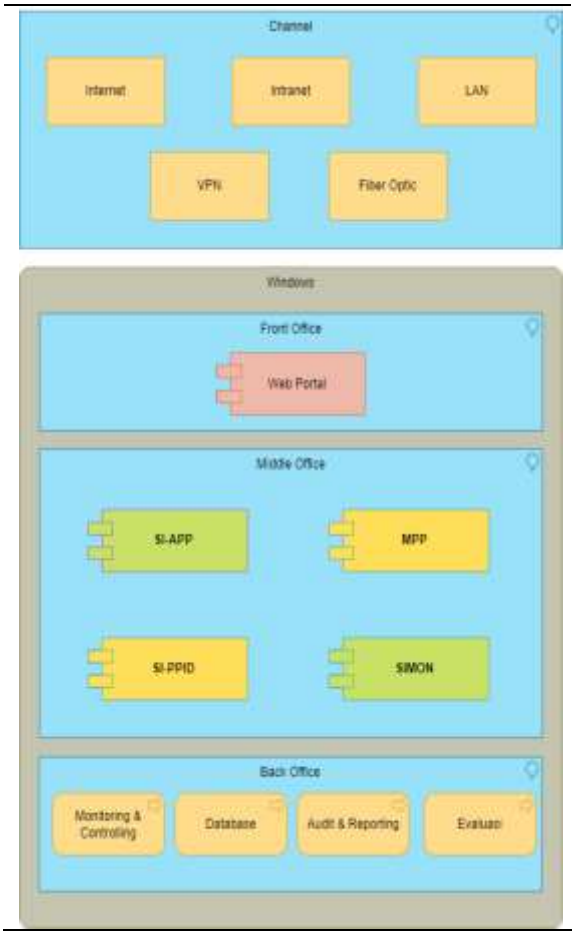
Blueprint Solution Concept Diagram



CONCLUSION

The results of analyzing the design of Enterprise Architecture (EA) which focuses on the development of an Electronic-Based Government System (SPBE) at the Communication and Informatics Office (DISKOMINFO) of Lombok Ten-gah Regency. This SPBE development focuses on the Informatics Application Management Program with the TOGAF 9.2 approach which is adjusted to PermenPan RB No.19 of 2018 and PermenPan RB No.18 of 2022. This design goes through the prelimi-nary phase, the architecture vision phase, business architecture, service architecture, data and information architecture, application architecture, and technology architecture. Therefore, the results of this research can support the SPBE level of the Informatics Application Management Program, Informatics Application Division, DISKOMINFO Kab. Central Lombok.

In this research, there is data validation carried out with the Central Lombok District Communication and Informatics Office (DISKOMINFO), especially in the Informatics Application Division with the aim of relevance and alignment of the data used and needed to develop the right SPBE architecture. This research finally produces a blueprint that can later be used according to its function, namely developing SPBE architecture at the Communication and Informatics Office for the Informatics Application Management Program.

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