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# Leveraging Enterprise Architecture to Empower KOMINFO's Business Core Operations: A PMO Perspective

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**Abstract:** The Sky Bridge (Tol Langit) Program is an Indonesian government's strategic project aimed at digital transformation in the 3T regions (Tertinggal, Terdepan, Terluar - Underdeveloped, Frontline, Outermost). It requires thorough planning and integrated management for its implementation. A specialized unit with a helicopter view perspective is needed to ensure and oversee the alignment of processes. This important role is managed by the Project Management Office (PMO). One of the challenges PMO faces in ensuring an end-to-end process alignment is identifying the appropriate digital resources to support the process. This is where the Enterprise Architecture (EA) framework plays a crucial role as a blueprint for the organization's digital landscape. This reference helps map out existing data, applications, and business processes. Having this blueprint allows PMO to have a holistic view and make targeted decisions. EA also helps identify existing applications that can be integrated with new programs, avoiding unnecessary duplication. The use of ArchiMate, a language for enterprise architecture modeling, assists PMOs in planning digital transformations considering all aspects - business needs, applications, and technology. In short, a well-defined EA framework empowers PMOs to navigate the complexities of digital transformation in the telecommunications sector to ensure the successful implementation of the Sky Bridge Program.

**Keywords:** Archimate; Enterprise Architecture; Project Management Office; Telecommunication; *Digital Transformation*.

## INTRODUCTION

The Telecommunications and Information Accessibility Agency is a non-structural institution under the Ministry of Communication and Information Technology or KOMINFO that plays a crucial role in realizing national digital transformation. (KOMINFO 2018) BAKTI KOMINFO provides telecommunications and information infrastructure evenly across all regions of Indonesia (KOMINFO n.d.). The main task of BAKTI KOMINFO is to improve accessibility to telecommunications and information across all regions of Indonesia in 3T areas (frontline, outermost, and underdeveloped). Equal distribution of telecommunications and information infrastructure is a vital prerequisite for achieving digital transformation. Digital transformation is the government's effort to optimize the utilization of digital technology in various sectors such as the economy, education, and governance.

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The enhancement of telecommunications and information accessibility conducted by BAKTI KOMINFO will provide various benefits to society, including improving information accessibility, enabling people to access accurate and up-to-date information, increasing productivity, allowing people to work and learn more efficiently, enhancing welfare, enabling people to increase their income and standard of living. BAKTI KOMINFO has several flagship programs, such as Palapa Ring, which is a project to build a national optical fiber network connecting all regions of Indonesia, including 3T areas. Internet Access, a program to provide internet access in 3T areas through various technologies such as satellite, BTS, and Wi-Fi; and Digital Ecosystem, a program to develop the capacity and capability of society in utilizing digital technology.

The digital transformation program carried out by KOMINFO has already shown positive impacts on Indonesian society, particularly in 3T regions. These positive impacts include improved accessibility to telecommunications and information in rural areas which were previously unreachable. This improved accessibility has been achieved through the development of ICT infrastructure such as BTS towers, fiber optic networks, and satellites. Therefore, the role and function of BAKTI KOMINFO in the implementation of the 2020-2024 National Medium-Term Development Plan (RPJMN) and national digital transformation are crucial. BAKTI KOMINFO is expected to continue enhancing its performance to realize an intelligent Indonesian society, considering competitiveness in the national digital era is substantial.

In the development and improvement of telecommunications infrastructure accessibility, BAKTI KOMINFO set up PMO to enhance productivity and effectiveness in telecommunications infrastructure development. For illustration in industries, the implementation and management of telecommunications infrastructure development are managed by a special unit, namely the Project Management Office or PMO. The PMO plays a vital role in the telecommunications industry. Besides providing visibility and control over projects, another key role of the PMO is to ensure project realization and drive innovation within projects.

In this regard, PMO also plays a crucial role for BAKTI as it contributes significantly, and it is expected that PMO can have a specific role in designing applications that have not yet been implemented so that any gaps in telecommunications infrastructure development can be addressed. The use and development of EA can serve as a solution foundation in solving this problem because it enables to building of a comprehensive business architecture equipped with application, data, and technology architectures. One form of innovation is the design of project management applications, including supporting applications tailored to the needs of BAKTI KOMINFO in infrastructure development in 3T regions.

The utilization and development of an EA framework approach can serve as a solutive foundation in conveying this issue because it can build a comprehensive business architecture equipped with application, data, and technology architectures. EA provides PMO with a comprehensive overview, enabling PMO to provide input on applications that assist BAKTI KOMINFO in improving infrastructure development. EA can be used and easily updated if the application development has already existed and can be understood by all stakeholders.

This paper exercises the potential of implementing Enterprise Architecture (EA) within BAKTI KOMINFO to improve organizational services delivery and performance. Therefore, in this paper we propose EA as a comprehensive overview of the organization's technological environment, facilitating seamless project integration, and streamlining the functionalities of the Project Management Office (PMO). This holistic perspective empowers organizations to effectively manage application assets, data, technology, and business processes. A well-defined EA can serve as a valuable roadmap for future application selection, ensuring alignment with the organization's strategic objectives.

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## LITERATURE REVIEW

### Previous Studies or Research

Table 1. Previous Studies

| Author | Topic | Conclusion |
|---|---|---|
| (Manaek R., 2023) | The Company's Architecture for Telecommunication Infrastructure in Indonesia's Remote Areas. (Arsitektur Perusahaan Untuk Infrastuktur Telekomunikasi Di Daerah Pedalaman Indonesia) | Describing the architecture in telecommunication industry in Indonesia, but less detailed as it does not explain the main function of EA, which can be easily changed quickly and easily understood by many stakeholders. This paper does not explain future applications and existing applications. |
| (Amanda D., 2023) | Implementation of Governance in the Treated Water Industry using the Enterprise Architecture Framework | The architecture is explained in detail and combined into one diagram so that the diagram is easily understood. This paper lacks detailed explanations of the advantages of EA, especially that the architecture can be easily changed using ArchiMate, and there is no depiction of future and existing applications in the architecture development if one day wants to develop architecture for future purposes. |
| (Crosley N., 2023) | TOGAF Framework For an AI-enabled Software House | Explain about TOGAF with readable diagram. This paper lacks detailed explanations of the advantages of EA, especially the of future and existing applications in the architecture development if day wants to develop architecture for future purposes |

Based on the table above, it concluded that there are quite a few studies that use the Business Model Canvas and TOGAF as a foundation for building enterprise architecture. However, architecture in telecommunications from the PMO perspective is quite rare, even though many private and state-owned businesses use PMO as a foundation for building business processes or business flows. Additionally, in previous studies, there was no depiction of future and existing applications in enterprise architecture. On the other hand, if this is developed, it would be very beneficial as enterprise architecture using ArchiMate can be done more efficiently and easily, especially for companies with continuous development workflows.

### BAKTI KOMINFO

Badan Aksesibilitas Telekomunikasi dan Informasi (BAKTI) formerly had the name Balai Telekomunikasi dan Informatika Pedesaaan (BTIP). BAKTI operates under the Ministry of Telecommunications and Information, and the name BAKTI itself is listed in the KBBI (Great Indonesian Dictionary) with a positive meaning, which is obedient and respectful, an act that expresses loyalty, subjugating oneself, and faithfulness. BAKTI is a non-structural organization tasked with managing financing for universal service obligations and providing telecommunications and information infrastructure and services (KOMINFO 2019).

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One tangible manifestation of the Telecommunications and Information Accessibility Agency's efforts is its success in implementing several strategies. These include the realization of the National Strategic Projects (PSN) Palapa Ring, expanding BTS development, providing internet access in 3T areas, and developing the digital ecosystem. As part of BAKTI KOMINFO's development initiatives, the agency has successfully implemented the Palapa Ring project, which serves as the backbone network spanning 12,148 kilometers. Additionally, another achievement is the expansion of BTS infrastructure with the construction of 1682 4G BTS towers (KOMINFO n.d.).

**PMO (Project Management Office)**

Project Management Office (PMO), commonly referred to as PMO is an organization tasked with improving the success of a project. As a Center of Organization, PMO acts as a focal point for project management expertise, best practices, and standardized processes, unifying project management across the organization. PMO plays a key role in coordinating and centralizing project management implementation. The role of PMO can enhance project success by having several key success factors, including project integration, efficiency, satisfaction, business success, environmental performance, health and safety, and preparing for the future (Abal-Seqan, Pokharel, and Naji 2023). One of the common functions of PMO according to PMBOK (PMBOK 2017) is to provide input on tools and methodologies that support the smooth running of projects. In this regard, PMO helps translate the need for appropriate project management applications that will undoubtedly improve project efficiency and deployment success.

**ArchiMate**

ArchiMate is an open architecture modeling language used to design, model, and analyze enterprise architectures(Amanda, Makmur, and Santoso 2023). This language was developed by The Open Group and later evolved into the ISO 42010 standard. ArchiMate provides graphical notations that depict various aspects of enterprise architecture, including business, applications, technology, and data architecture. These notations enable enterprise architects to model and analyze enterprise architecture in a holistic and coordinated manner. Companies that use ArchiMate to create their enterprise architecture notations will benefit from the following.

a. ArchiMate provides a common language with graphical notations that can be understood by various stakeholders within a company, from management to developers. This fosters effective communication and coordination.
b. ArchiMate can help enterprise architects present more structured and organized architecture models. This is important considering that good architecture modeling will ease the identification of business problems and opportunities and facilitate better and faster decision-making.
c. ArchiMate helps companies save costs and reduce risks. By using ArchiMate, companies can ensure that they have secure, efficient, and reliable architectures.
d. ArchiMate is an architecture language that can be integrated with other industry standards. This is because ArchiMate has been integrated with TOGAF, a popular enterprise architecture standard. This integration makes it easier for enterprise architects to build enterprise architecture models by industry standards. The ease of integration also provides opportunities for companies to collaborate with business partners and service/product providers.
e. ArchiMate is scalable and flexible, allowing companies to create enterprise architecture models that can be easily changed and updated. This is urgent considering that business and technology conditions are constantly changing.

In short, ArchiMate is a tool that helps companies design, plan, and manage their enterprise architecture holistically. It is essential for companies to achieve their business goals more effectively and efficiently.

**BMC (Business Model Canvas)**

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Business Model Canvas is a management strategy tool to translate a company's concept, customers, infrastructure, and finances into visual elements (Crosley, Indrajit, and Dazki 2023). There are nine elements in the BMC or Business Model Canvas Model used to depict and describe the business architecture, namely:

**Value Proposition** is the value proposition of a product/service so that customers choose to buy from a company rather than its competitors because it provides solutions to their business operation problems.

**Customer Segments** are the target consumers to be reached. This is closely linked to the value proposition of the product or service offered. Target consumers can be divided based on needs, such as age, gender, hobbies, or geographic location.

**Customer Relationship** is how the most effective approach is considered whether it's personal or other approaches.

**Channels** are how we conduct business transactions with customers easily and effectively.

**Key Activities** are the daily business activities carried out to achieve or realize the value proposition for consumers.

**Key Resources** Consists of resources owned by the company in carrying out business activities such as tools, workspace, employees, vehicles, and electricity.

**Key Partners** are the partners that support the company's business activities such as suppliers of needs, service providers or principal technology devices, and bank or financial institution providing purchase credit.

**Cost Structures** is the financial scheme or operational financing of the company. Informing the funds needed to run company activities, the cost of resources used, and the cost required for product marketing.

**Revenue Streams** is the company's revenue stream obtained from selling products, and services to consumers or through streams.

**Enterprise Architecture**

An enterprise is a collection of organizations that share the same goals (Group 2021). Business architecture is a description of the structure and behavior of an organization, including its strategies, business processes, organization, and information. In other words, Enterprise is a strategic approach used by companies to design, plan, and manage business and information technology (IT) architecture within the organization to provide a range of benefits for the company, including improving overall business performance(Amanda, Makmur, and Santoso 2023). In this regard, EA is used as a tool by companies to understand the structure business processes, and resources within their organization, and to develop integrated and coordinated architectures to support business and IT goals. Companies are also able to identify areas that can be simplified or consolidated, as well as orchestrate systems and processes to reduce complexity and improve efficiency (Manaek, Richardus Eko Indrajit, and Erick Dazki 2023). EA helps companies improve efficiency and reduce costs by identifying components that require improvement or reduction. This information is valuable and can be used as a basis for policy-making processes. Information technology can assist companies in managing business and IT systems holistically. As an effort to reduce risks, enhance system security and reliability, and keep the company adaptive to technological and business changes.

**EA and BMC Correlation**

BMC and EA are two interrelated frameworks that mutually reinforce each other. BMC helps companies visualize their business model, while EA helps companies design and implement their business model. The correlation between them includes:

a. BMC is a visual representation of business processes, customers, and organizational resources. The development of business architecture assists companies in identifying the value offered to customers, determining target markets, and designing strategies to reach those markets. BMC is also used to identify the resources needed to execute the strategy, While EA represents the

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visualization of the entire organization, including aligning business strategies, and organizational structure, with IT architecture.

b. BMC helps visualize the company's business model and customer journey, while EA identifies and designs an integrated and coordinated business architecture to support that business model.
c. BMC is used to plan and implement changes within the organization. The details of planning and implementing changes within the organization, including changes to business processes, organizational structure, and information technology, are depicted in Enterprise Architecture. In this regard, EA helps in developing BMC as an enterprise improvement effort by ensuring that the business model is integrated with business and IT architecture comprehensively.
d. Based on changes in the business model within the framework of EA, the impact of changes is predictable, including the need for IT and the resources required to support the new business model. Thus, the company can identify fundamental business processes along with the required IT systems.

## METHOD

The journal is written using a descriptive qualitative method. The qualitative method involves collecting data from respondents' opinions, perceptions, and experiences (Abdussamad 2021). The qualitative method involves a literature review conducted on scholarly articles to study a specific topic. A literature review allows researchers to gain a broad overview of a particular discipline, identify relevant theories, and analyze insights pertinent to the field of study (Mulyana et al. 2023).

The research framework is developed in the research phase, followed by data collection and interviews with key informants. The overall outline of the research method is illustrated in Figure 1. The research process starts with a literature review, followed by data collection through interviews and observations, supplemented with additional references and discussions to design business architecture, technology architecture, and information system architecture. Finally, a discussion is conducted to conclude the research.

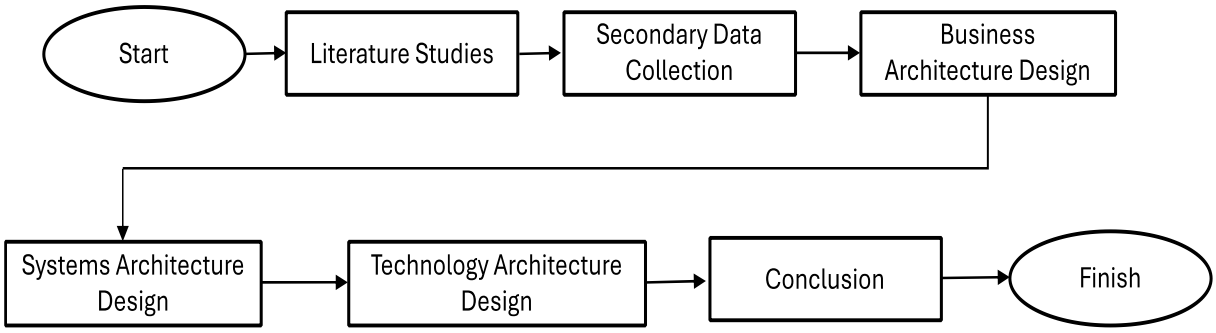


Fig 1. Research Flow

Data collection involves both primary and secondary sources. Primary data is obtained through interviews with several Project Management Officers who have knowledge and experience related to the digital transformation program conducted by the Ministry of Communication and Informatics (KOMINFO). These informants include officials at KOMINFO responsible for implementing the digital transformation program, as well as members of the community who have benefited from KOMINFO's digital transformation program. Secondary data is obtained through documents and literature studies from relevant sources.

Document and literature studies are conducted by searching for references from books, journals, articles, and documents related to KOMINFO's digital transformation program. The data obtained from documents and literature studies aim to support the primary data obtained from interviews with informants.

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A descriptive method is applied to provide a detailed overview of a problem or phenomenon being studied (Subandi 2011). This methodology is applied to provide a clear picture of KOMINFO's current digital transformation program. The author also aims to provide useful information for readers regarding the Indonesian government's efforts to enhance the utilization of ICT as part of the acceleration of national infrastructure development, as outlined in the National Medium-Term Development Plan or RPJMN for the period 2020-2024.

From the literature review, three studies have been identified that combine the Business Canvas Model approach with ArchiMate in enterprise architecture (EA) modeling. The first study (Ridwan 2022) utilizes TOGAF and notates enterprise architecture with ArchiMate, covering four perspective areas (business, technology, application, and data). The enterprise architecture along with its details is thoroughly discussed, focusing solely on the banking industry. A similar approach is also found in fintech research (Intani et al. 2022). Another study that applies the concept of the Business Canvas Model and ArchiMate as a reference for forming enterprise architecture is conducted (Wiyanto, Richardus Eko Indrajit, and Erick Dazki 2023) for the design of a College of Fine Arts, ensuring that the architecture of the company appears systematic and consistent. In conclusion, several papers discuss enterprise architecture, and this writing highlights the Enterprise Architecture modeling and ArchiMate related to the deployment of digital transformation in 3T areas.

## RESULT

At this stage, we will create a Business Model Canvas based on the analysis results. The Business Model Canvas for the telecommunications industry will be depicted as follows: ***Value Proposition***: BAKTI KOMINFO, the value proposition is to provide affordable, quality internet solutions and services to consumers with accessible connectivity available 24/7. The value offered to users such as schools, village offices, community health centers (PUSKESMAS), and regional security posts is the ease of accessing the internet network in rural 3T areas. With an unlimited internet connection, village officials and healthcare workers can communicate with the central office. School students can participate in online learning and national exams, providing them with equal opportunities to access various educational information. For the Ministry of Micro, Small, and Medium Enterprises or MSMEs, the internet provides opportunities to reach domestic and international markets through online stores and joining marketplaces. MSME entrepreneurs can also learn to improve the quality of their products by studying competitors' products or accessing abundant knowledge available on the internet. ***Customer Segments:*** BAKTI KOMINFO is a Ministry/Agency/Regional and Institutional body operating in rural 3T areas. BAKTI KOMINFO also facilitates opportunities for collaboration with industrial partners. ***Customer Relationship***: Scheduled coordination and socialization with Ministries/Agencies/Regional and Institutional bodies are conducted through the Directorate of Community Services. Initiatives for collaboration programs with the private sector/industrial partners are managed through the Directorate of Enterprises. Additionally, public training sessions are organized as part of Digital Transformation in synergy with Village-Owned Enterprises (Badan Usaha Milik Desa, BUMDES) under the Ministry of Village, Development of Disadvantaged Regions, and Transmigration. ***Channels*** in BAKTI KOMINFO utilize website-based applications, help desks, social media platforms such as Instagram, and activities including visits to Ministries/Agencies/Regional and Institutional bodies to socialize the Sky Toll Program. ***Key Activities*** BAKTI KOMINFO: Registration, Proposal submission of location, Proposal verification process, Proposal approval, Construction, Operational Maintenance. ***Key Resources:*** Consists of an online system registration, location proposals from proposers, a database, a verification team, authorized officials, an implementation team, and an operation & maintenance team. ***Key Partners:*** These partners consist of network providers and telecommunications equipment suppliers, IT application development developers, data center vendors, project management service providers, and network maintenance & solutions providers. ***Cost Structures*** Include, among others, labor costs, costs for renting internet network services, costs for renting facilities and utilities, travel expenses, and managed services costs. ***Revenue Streams*** BAKTI KOMINFO include, among others, contributions from the KPU / USO (Universal Service Obligation) Telecommunication Organizer, sales of ICT services, donations, and grants.

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## DISCUSSIONS

After obtaining the results of creating the business model canvas, we will then discuss the company's architecture from the perspective of applications, business, systems, and data, regarding the generated business model canvas.

### Business Architecture

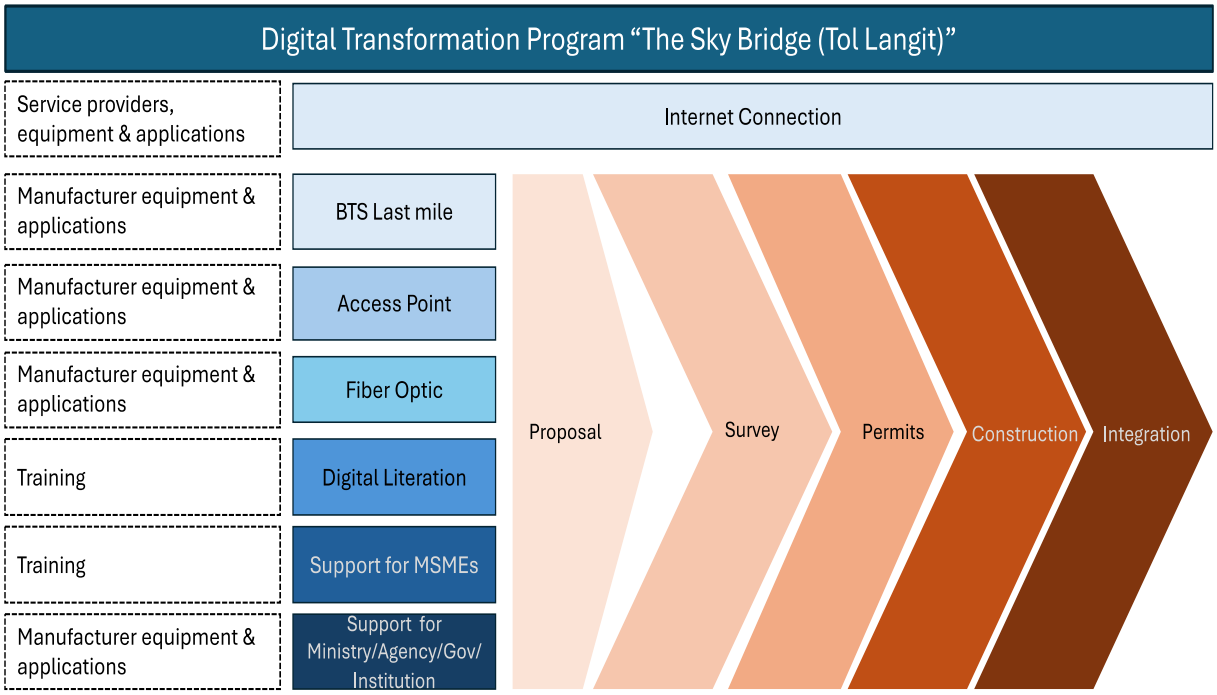


Fig 2. Business Architecture Result from PMO Mapping.

Business Architecture is used to understand, assist, and manage the business owned by BAKTI KOMINFO. The Business Model Canvas is used as a reference to create business architecture, as shown in Figure 2, representing the business processes at BAKTI KOMINFO, including:

**Internet connection provider:** In this section, KOMINFO is responsible for providing internet access throughout Indonesia, especially in 3T areas. KOMINFO also regulates and develops regulations regarding internet services provided by cellular operators.

**BTS Last mile**: In this business process, KOMINFO builds BTS (Base Transceiver Station) Last mile, which will be leased to cellular operators.

**Access Point**: In this business process, KOMINFO will increase the number of access points throughout all regions in Indonesia.

**Fiber Optic**: In this business process, KOMINFO is enhancing and building infrastructure using fiber optic. Additionally, KOMINFO is increasing the penetration of fiber optic in hard-to-reach areas.

**Digital Literation**: In this business or activity, KOMINFO is striving to educate digital skills to the community in 3T areas to create digital economic value. Digital literacy includes empowering housewives in NTT to use social media to promote their MSME products and increase family income.

**UMKM Support**: In this business, KOMINFO provides support to Micro, Small, and Medium Enterprises (UMKM or MSMEs) in utilizing technology to enhance productivity and profits. For instance, farmers in Papua can use the internet to search for market prices, adopt better farming techniques, and access digital financial services.

**K/L/D/I Support**: In this business, KOMINFO provides support to Ministries/Agencies/Regional and Institutional bodies (K/L/D/I), customers, or the public in need.

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**Application Architecture**

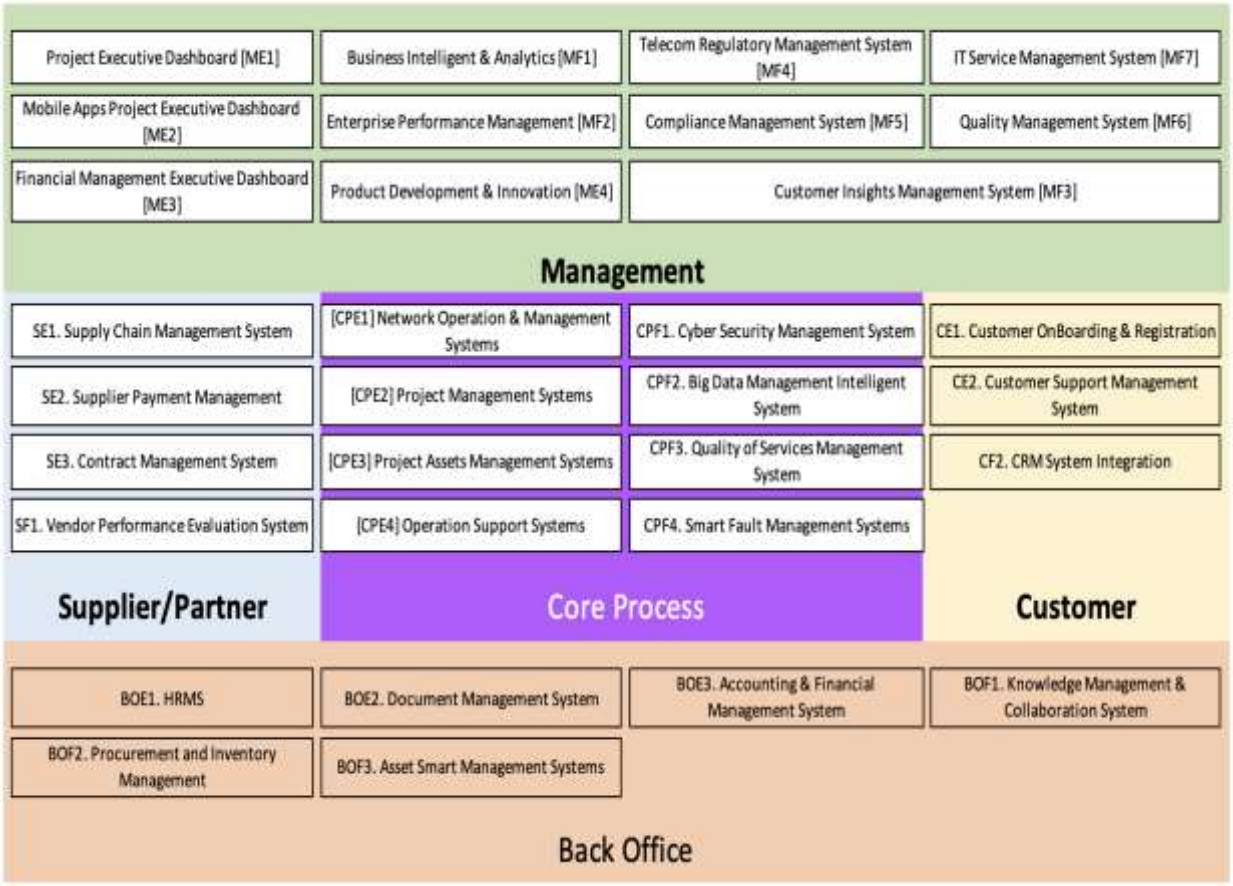


Fig 3. Application Architecture Result from PMO Mapping

Application architecture is an application that is required and divided into five components, namely applications for suppliers or partners, core processes, back office, and executive level to consumers. Application Architecture with the Code "xxF" means an application that does not exist yet and is recommended to be created, while the "xxE" application is an existing application. From this explanation, the following is the division and explanation of each component that exists:

**Management**, marked by the green section at the top, below are the applications that exist in the management section: **Project Executive Dashboard [ME1]:** This system is already existing and used to monitor web-based construction performance, **Mobile Apps Project Executive Dashboard [ME2]:** This system is already existing and used to monitor mobile-based construction performance, **Financial Management Executive Dashboard [ME3]**: This system already exists and is used by executives to monitor spending on BTS construction activities, **Business Intelligence and Analytics [MF1]:** This system is not yet available and will be a future application needed to streamline business processes. This system is useful for analyzing business and identifying gaps and shortcomings in existing businesses, **Enterprise Performance Management [MF2]:** This system is not yet available and will be a future application needed to assess performance, both financially and in terms of company productivity, **Product Development & Innovation [ME4]:** This system is already available and is useful for listing and adding innovation to a product, **Telcom Regulatory Management System [MF4**]: S This system is not yet available, used to manage existing and proposed telecommunications regulations, **Compliance Management System [MF5]:** This system is not yet available, used to manage all systems, applications, and tools

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to ensure compliance with all policies and regulations, **IT Service Management System [MF7]:** This system is not yet available and is used to manage all IT-related services, **Quality Management System [MF6]:** This system is not yet available and is used for quality control of BTS or inventory used to build BTS according to existing minimum requirements, **Customer Insight Management System [MF3]:** This system is not yet available and is used to accommodate customer complaints and aspirations, aiming to improve the quality of these complaints.

**Supplier/Partner**, marked by the blue section positioned at the middle left corner, below are the applications that exist in the supplier/partner section: **Supply Chain Management System [SE1]:** This system is already available and existing, used for supply chain management, **Supplier Payment Management System [SE2]:** This system is already available and existing, used to manage supplier payments, **Contract Management System [SE3]:** This system is already available and existing, used for managing contracts, agreements, or tenders, **Vendor Performance Evaluation System [SF1]:** This system is not yet available and is a future application listing. This application or system is used to digitally evaluate vendor performance.

**Core process**, marked by the purple section positioned in the middle, below are the applications that exist in the core process section: **Network Operation Management System [CPE1]:** This system is already available or existing and is used to manage the network operations of all BTS (Base Transceiver Stations) across Indonesia, **Project Management System [CPE2]:** This system is already available or existing and is used for monitoring BTS projects from start to finish, **Project Asset Management System [CPE3]:** This system is already available or existing and is used to manage assets from ongoing projects, **Operation Support System [CPE4]:** This system is already available and is used to provide support and assistance in operations, **Cyber Security Management System [CF1]:** This system is not yet available and is used for monitoring and managing cybersecurity measures that have not been or have already been implemented, **Big Data Intelligent Management System [CF2]:** This system is not yet available and is used to manage big data, which will provide insights for decision-making, **Quality of Service Management System [CF3]:** This system is not yet available and is used to manage the quality of service provided for a particular system or application, **Smart Fault Management System [CF4]:** This system is not yet available and is used to detect errors in a system. The system consists of intelligent notifications for anomalies in a system.

**Customer**, marked by the yellow section positioned in the middle right corner, below are the applications that exist in the customer section: **Customer Onboarding Registration [CE1]:** This system already exists and is used for customer registration, **Customer Support Management System [CE2]:** This system already exists and is used to manage customer complaints, which will then be supported by customer service, **CRM System Integration [CF1]:** This system is not yet existing. It is expected that this application will be useful as a customer relationship management system integrated with systems related to customers.

**Back Office**, marked by the orange section positioned at the bottom, below are the applications that exist in the back-office section: **HRMS [BOE1]:** This system already exists and is used for HR purposes, **Document Management System [BOE2]:** This system already exists and is used for managing internal and external documents, **Accounting and Financial Management System [BOE3]:** This system already exists and is used for accounting and financial management purposes, **Knowledge Management and Collaboration System [BOF1]:** This system does not exist yet and is used for knowledge management and collaboration between systems, **Procurement and Inventory Management [BOF2]:** This system does not exist yet. It is expected that this application will be used for procurement and inventory management, **Asset Smart Management System [BOF3]:** This system does not exist yet. It is expected that this application will be used to manage smart assets.

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**Data Architecture**

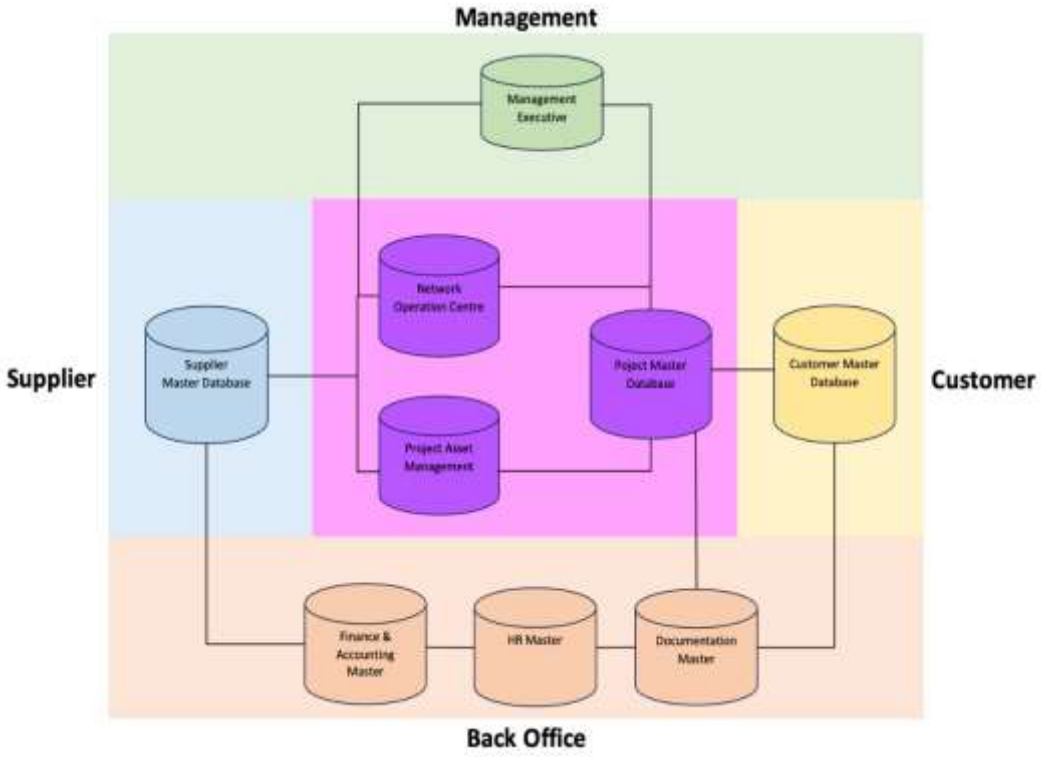


Fig 4. Architecture Database resulting from PMO Mapping

After completing the creation of the application architecture, the next step in Information Architecture is to create and illustrate master data from the five parts that correspond to the application architecture, including:

**Management**: Master Data Management is represented by the green color. In this section, there is one master data, namely "Executive Management," which is used to manage and monitor executives. This data will be useful for analyzing overall aspects, thereby facilitating decision-making.

**Customer**: This section is represented by the yellow color. In the consumer section, there is one master database that stores proposer data, including the name of the proposing institution, the name of the proposer representative as the Person in Charge, their contact number or email, the proposed location, and the type of connection proposed, whether it's a BTS site or an Access Point. This data will be used in the infrastructure development planning process and is required by the Customer Onboarding Registration System and Customer Support Management System.

**Back Office**: It is an orange-colored database, which contains 3 master databases to support the functions of support or Back Office. The Finance & Accounting Database is for supplier payment transactions, where both are interconnected. The Human Resources Database contains personal employee data required by the HRMS application. The Finance & Accounting master data is related to the supplier transaction process Contract Management System. And documentation master database to support the Document Management System.

**Supplier**: In this section, the data depicted is in blue. In this part, there is one database that stores all vendor/partner data; both individual partners and companies. The Supply Chain, Supplier Payment, and Contract Management systems applications require this master supplier data.

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**Core Process**: In this section, the data depicted is in purple. In this part, there are 3 master databases: the project master database needed by the Project Management System, the asset master data for the Asset Management System, and the network performance master data required by the Network Operation Centre System.

## Technology Architecture

The technology architecture of the processes run by BAKTI KOMINFO is depicted in Figure 5. The connection starts from the international link through the national backbone. To accommodate the internet connection needs in rural areas, the connection is continued through several media options: satellite via ground stations, microwave links, or fiber lines. These three media options are selected and managed by BAKTI KOMINFO. From these options, the connection is distributed to end users using BTS resources or through internet access. The connection users include schools, village government offices, defense & security agencies, health service centers, and even residents. The network performance is monitored comprehensively through the Network Operation Centre (NOC) using satellite connections.

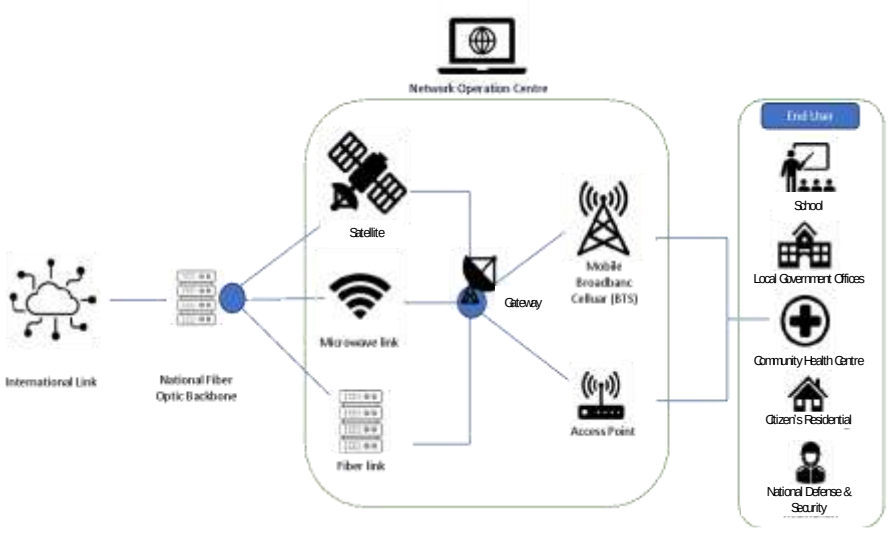


Fig 5. The Technology Architecture map by PMO.

## Comprehensive Enterprise Architecture Formation

The creation of Enterprise Architecture (EA) using ArchiMate facilitates the Project Management Office (PMO) in visualizing business processes and providing input on applications that are not yet available but can streamline the business processes of BAKTI KOMINFO. This can be seen in Figure 6.

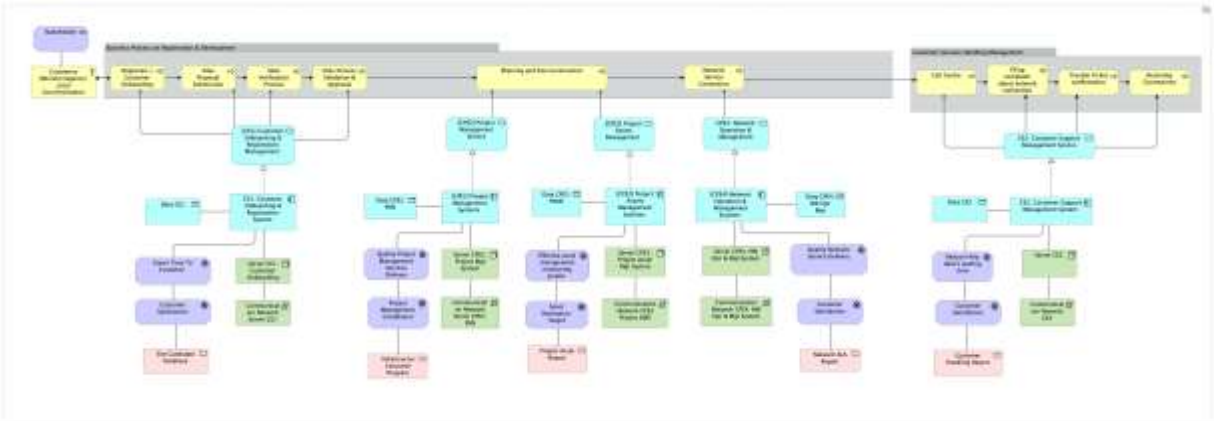

Fig 6. The formation of EA is the result of the overall architecture.

*name of corresponding author

In Figure 6, it can be observed that the initial steps involve customer registration, proposal submission, proposal verification process, and validation of proposals using the CE1 application with CE1 data. The crucial aspect here is the speed in handling customers to ensure good customer satisfaction output.

After validating the proposals, the next steps involve planning and developing applications using Project Management Service [CPE2] and Project Asset Management [CPE3]. Project Management Service utilizes PMS data [CPE2], aiming for Quality Project Management Service Delivery to achieve Project Management Compliance output. Project Asset Management [CPE3] utilizes the PAMS database [CPE3], targeting an Effective Asset Management Monitoring System and generating Asset Realization Target output.

Following the proposal validation, the process continues with network connection services using Network Operation & Management [CPE4], leveraging NW Operation Management data [CPE4]. The aim here is to achieve Quality Network Service Delivery and ensure good Customer Satisfaction output. Subsequently, after the proposal validation, the process proceeds to handle complaints. Here, the Customer Support Management System [CE2] application is used, relying on CE2 data. The goal is to Reduce Help Desk Waiting Time and achieve good Customer Satisfaction output.

## CONCLUSION

In supporting the strategic role of being the primary internet provider for rural or 3T (remote, frontier, and underdeveloped) areas, which essentially realizes the sky highway program, PMO requires an enterprise architecture to support and facilitate digital transformation. Enterprise Architecture is used to identify necessary asset capabilities and business processes, as well as to manage risks and changes. It eases PMO in mapping all business processes and assets, improving, and supplementing the existing business processes of BAKTI KOMINFO in implementing network infrastructure development.

In this research, Enterprise Architecture serves as a blueprint derived from interviews with experienced PMO professionals in their field. The creation of the Enterprise Architecture model is based on qualitative analysis by PMO, and mapping assisted by the business model canvas.

The construction of Enterprise Architecture is anticipated to become an alternative wish list for future applications that BAKTI KOMINFO can consider implementing to improve organizational services and performance in the future. Furthermore, possessing Enterprise Architecture facilitates the organization in preparing, building, managing, and developing applications of assets, data, technology, and business processes periodically over time. It fosters a holistic view of the organization's technological landscape, enabling seamless project integration and streamlining Project Management Office (PMO) functionalities in managing project implementation effectively and efficiently.

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