

Organizational Architecture and Service Delivery Re-Alignment based on ITIL and TOGAF: Case Study of the Provincial Development Bank

Asti Amalia Nur Fajrillah, Muharman Lubis, Irmayanti Syam
Department of Information System, Telkom University
Bandung, Indonesia

Abstract—The operations function area is the core function areas of the development bank to serve its customer related to the financial needs. Interestingly, the total scope of services provided in this case can be categorized as small or not optimal compared to the total population of its coverage area in the West Java and Banten. The lack of customer confidence in the services offered can be said as one of the reason cause by the unpreparedness of organization to adopt business agility and technological innovation as their alignment framework. Thus, as the beginning, IT planning in the function area can be utilized as the solution to be implemented to increase the service delivery performance through strengthening the organizational architecture. To support this, Enterprise Architecture (EA) should align business and IT with mapping ITIL best practice as a foundation and practical direction to bring the company operational services to have sustainability in growth, profit and satisfaction. This study delivers the roadmap design using the TOGAF framework to identify the current state of the company and the desired IT architecture with business strategies in the area of operations functions.

Keywords—Organization; service; innovation; alignment; ITIL; TOGAF; alignment

I. INTRODUCTION

Information Technology (IT) is one of the functional aspects that is needed to support the operational performance of a company or organization to achieve the objective based on the designated of vision and mission. Indeed, IT can be a differentiating factor between companies especially to provide insight of innovation within organizational architecture and ensuring the service delivery of core competence to the market segment. Therefore, the IT application has become the main focus in helping companies achieve success and excellence amid increasingly fierce business competition, which in the further lead to the creation of competitive advantages that bring uniqueness of the company. The rapid progress of IT is expected to be able to facilitate every processes related to company information, from collecting, processing, to reporting information. Actually, many important issues for bank that should be considered due to the emergence of advanced technology that drag the business process to be shifted dramatically that influence on how to perceive towards the importance of architecture such as personalization security and policy, universality of interaction and communication, leveraging access with clear separation and easy integration, service component development as well as disruptive

innovation of financial technology [1, 2, 3, 4]. Thus, the key to successful execution related to the time when the deployment of IT can efficiently support the achievement of strategies, goals, and business needs. Thus, the alignment between IT strategy and business strategy can provide solutions to organizations that rigorously and frequently face pressure from competitor or even the supplier. The development of the role of IT and the increasing value of high investment have led to increasing demands for the added value that mostly the company go to IT to provide the answer.

Actually, organizational architecture composed of strategy, structure, systems, skills and culture that provide room for operation to satisfy the customers in delivering the product or service to certain extent that allow sustainability. In this era of transformation, many business processes are successful due to the utilization of the existing technology to create competitive advantage. However, achieving these benefits is not easy with numerous problems faced by the company that often occur as the business environment change both from within and outside the company. Often, it occurs continuously that force the companies to adapt to the new environment, which of course required a lot of resources if they do not want to fail. Other problems that arise turned out to be from internal namely declining employee performance, lack of controlling from the leadership in responding to dynamic market or even the lack of achievement in the company targets or incomplete task on schedule lead to huge impact to the growth, profit and of course customer satisfaction.

The complexity of the existing problems with the development of IT is directly proportional and has penetrated various industrial sectors. One of the clearest examples is the use of IT in the banking industry, wherein the utilization of IT related products can provide a variety of services to consumers with fewer workers. Therefore, the use can be called as not optimal due to several restrictions that bank cannot do by the regulation such as that the investment or the ownership to real sector. As with any business, banks need to be aware of wise spending due to limitation to convert its profit into real assets. In addition, the banking industry today also is facing a series of new situations that specifically support the need for efficiency with the changing customer preferences and expectations, new competition and new technologies influence the nature of banking services. By moving to a technology-based digital model while retaining an important aspect of traditional interpersonal business models are extremely difficult because

the regulation has set the categories of business that bank can do or cannot do. Of course, to stay competitive, banks need to invest in technology, marketing, automation, and self-service capabilities, as well as improve traditional investments in traditional branches and systems. All of these changes are occurring in an industrial environment that is witnessing narrowing margins, slowing deposit growth, and the potential situation for a recession with optimization of customer driven strategy. Thus, the basic premise of solution for this collection of problem by realignment of organizational architecture and service delivery through restructuring and withdrawing a low-margin business line to migrate with a business line that is essentially more cost-effective and makes the bank more profitable. By setting this direction as the priority, bank can take a strong approach to strategic planning, assessing the minimum commitment of resources needed to compete in a particular business area, and identifying opportunities to differentiate themselves from their competitors. In many cases, this means that traditional banks may choose to terminate the unconventional businesses such as professional financing and payment processing.

On the contrary, these strategic shifts may require banks to increase their investment and costs in the short term to improve profitability and efficiency in the long run. In this case, development bank in west java has compiled key performance indicators (KPI) to provide periodic evaluations for productivity and profitability, which engaged directly in financial services by applying IT governance. Based on the current strategic plan, there are several processes that have not met their targets, both in terms of business, data, applications, and technology. This study wants to explore the realignment process with formulating the roadmap by using the combination of TOGAF as EA framework for organizational architecture and ITIL as service delivery model. Implementation of information systems (IS) that are aligned with the organization requires the existence of a roadmap to define major goal in desired goal of company to establish business architecture, IS and technology that can align business strategies with IT. As provincial development bank in Indonesia, it has the objective to support the master plan and government policy through distributing credits as well have role for intermediacy and restructurization of business, especially in the era of pandemic. Thus, the risk should be identified and controlled concusively to maintain the profitability in the above average for return of equity and sharings.

II. LITERATURE REVIEW

A. Organizational Perspectives

To succeed in today's competitive business environment, companies need a clear business strategy that is supported by other organizational strategies. By defining coordination as a strategic consensus or organizational fit, it is suggested that the strategic priorities be adjusted at the operational level to support the business unit level [5], [6]. Organizational resilience is portrayed as an important ability of the organization to cope with unprecedented changes in the business environment, fierce market competition, etc., and prosperity to achieve global success. To deal well with volatile

external and internal changes, flexibility provides organizations a fast and easy way to improve business processes [5], [7]. Therefore, organizational resilience can be defined as a business need related to rapid response or the ability of an organization to detect unexpected changes in customer demand, competitors' strategy, business environment, etc. This means that agile organizations can respond quickly and efficiently to changes in the market. With regard to the relationship between strategic integrity of IT business and organizational agility, external factors such as environmental uncertainty are one of the issues that should be considered a mitigating role. When the external environment is uncertain, companies need to anticipate imminent changes and adapt their organizational strategies to environmental changes [8].

Process-level values are a major factor in enabling IT-based strategic design. This affects the performance of IT resources and creates unique resources that cannot be easily replicated as a job. They facilitate the functional activity of the agility or operational capabilities of an organization, they facilitate the transfer of dynamic capabilities from the diversity between companies, or the way in which their functional processes are carried out, which are complementary resources and capabilities [9]. Many factors are said to explain the conditions under which labor value is created, that is, organizational, industrial and macroeconomic factors, i.e. shortage of qualified personnel and training, can adversely affect the success implementation [10]. Information technology poses a difficult dilemma for current management, which proper investment can provide a competitive advantage over competitors while the IT budget allocation with the increased burden of measuring yield, the result is not good at best [11]. Through critical analysis of the relationship between the six aspects of the overall value of e-government, which are the improvement of management efficiency, open government (OG) function, and improvement of ethical and professional behavior have been closely linked to improve government management [12].

Other studies described cost, time, convenience, personalization, proper communication, ease of information retrieval, trust, adequate information, and participation in decision-making to explain most of the overall e-government perception [13], [14]. Organizations are implementing changes to adapt to rapid context within turbulent environments; these changes often affect business and IT. In most cases, changes affect organizational elements which do not clearly define adaptation and exclude elements that could lead to inconsistencies or misalignment [15], [16]. It is the responsibility and duty of officials or managers in the face of environmental uncertainty to understand important events and their changes to prepare the proper response towards how they affect the organization. Agility allows organizations to provide survival in such environments quickly, innovatively and creatively. It requires rapid changes in company structure and composition, which can be implemented in various strategic planning activities [17].

B. Technological Innovations

Interestingly, there is a productivity paradox that investment in information technology does not ultimately affect productivity growth [18]. Despite apparent efforts by the

scientific community to articulate the vision of strategic alignment of IT and business, IT and business are inevitably very dynamic, so the application of the organization to the real world still suffers from a gap. Contributions on the topic have grown very rapidly, but the relationship between assumptions and conclusions is inconsistent and inconsistent. The main reason is that the proposed model is highly conceptual and detached from the actual reality of the organization [19], [20], which is related to distorted vision of myopia as another paradox in this area. Meanwhile, organizations also question the return on investment in formal security awareness strategies intertwined with training, campaigns, and reward systems [21]. This can improve ethical and unethical perceptions of IT in users, but these perceptions are often vague, making it difficult to monitor their effectiveness.

The use of technology must address the quality of information such as accuracy, completeness, timeliness and reliability related to the data subject that should be available to the public where innovation should be properly designed [22], [23]. However, keep in mind that innovation alone is not enough to sustain a work life without being integrated with corporate strategy, readiness, employee motivation, and business vision. Therefore, learning from the failures of today's enterprises that have lost control of the market can provide general insights into how innovation works [24]. Various infrastructure network organizations bring direct efficiency to data delivery and processing, enabling networks to be recognized as a data flow model with the technological elements underlying communication between computer systems [25]. To improve profits, growth, satisfaction, performance, business strategy from competition and supplier pressure, companies can take full advantage of information technology and take standard operating steps to maintain service. You need to help your organization achieve its goals [26], [27].

C. Business Objectives

Complex business processes designed on the standards of each product and component can make process automation, customization, and customization difficult. Therefore, the realization of new projects is the creation of business case study documents that are responsible for identifying current customer requests and finding potential clients, maximizing business value and improving corporate governance structure and begins with a feasibility study [28]. It is necessary to build an information system that helps you create fast and efficient services within the business goals associated with your organization's vision and mission [29]. Competition between companies has become a major trend towards business service delivery where certain standard such as ITSM (Information Technology Service Management) has been utilized as a source of practical guidance for creating process improvements [30].

On the other hand, maintaining the integrity of business and information technology has four perspectives: strategy implementation, technology transformation, competitiveness, and service level. In supporting the business vision, one of the primary functions that greatly support the services a company provides is the logistics and maintenance functions. Second, to support your company's business operations, you need to use the right IT applications and devices to optimally manage your

family and provide your company requirements to serve your customers. Scalability is the most important feature of an IT architecture and has a major impact on all aspects of a project, so it is important to incorporate it into the enterprise architecture design [31]. Therefore, it is best to design a business evaluation before providing a business service. In this case, outcome questions can influence service design and provide information that can help you set realistic expectations. You may need to collect data before you can provide the service, but you can get a successful evaluation after providing the service. Some evaluation questions can be overcome with current employee data, accounting, or company performance such as costs of keeping turnover. Moreover, new data such as changes in skills, supervisors, and customer satisfaction are needed to compare performance over different time periods and interpret business service outcomes [32].

By emphasizing the level of business and IT integration that represents the administrative aspect of the organization and the value that IT contributes to, which represents the complexity aspect of the system in business. Assessing the degree and level of consistency can deliver specific detail on the state of business objective. These can reflect the coordination profile of the organization, which ultimately consists of an operational resource profile, a strategic resource, and a weapon profile [33]. Top management should provide a technical view to better clarify the logic and options associated with the IT strategy that support the chosen business strategy. Therefore, the role of the IT manager should be that of the technology engineer by efficiently and effectively designing and implementing the required IT infrastructure that is compatible with the external components of an IT strategy [34]. Every business unit has its own business requirements, and while IT departments need to make standards cost-effective, they need to be analyzed [35]. IT governance enables both business and IT personnel to fulfill their responsibilities to support business and IT integration and create commercial value from IT-supported business investments. Business strategy drives the design of information system infrastructure and organization through new technology capabilities [36], [37].

III. METHODOLOGY

The TOGAF ADM framework and ITIL best practices have essentially the same cycle. For the difference, TOGAF focuses on developing business architecture and ITIL's scope of IT development is effective and efficient. TOGAF does not cover runtime development and maintenance, namely how services are produced to be delivered. To build an EA with the TOGAF approach in meeting market needs in a sustainable cycle, it is necessary to add additional phases to ITIL best practice, namely service operation, so as to improve operational services. The advantages possessed by ITIL are the general concept and a series of integrated best practices that can help companies meet market needs in a sustainable cycle. These best practices provide a competitive advantage through value creation and agile change. Companies that adopt ITIL can be optimized in service provision, because service levels have been agreed upon so that it is easy to provide consistent service. Apart from the advantages offered by ITIL, there are also disadvantages, namely the large cost because the concept

is comprehensive. ITIL is holistic, covering the entire IT governance framework. In addition, in its utilization, it requires special training by employees, so it can be said that ITIL is less flexible as can be seen in Fig. 1.

If the attention to alignment is greatly recognized, its implementation remains very limited. Therefore, this means that while the actors in the organization cannot distinguish between alignment and imbalances, the lack of a method for assessing alignment makes the task at the decision level very difficult [38]. Today, building a robust information system is not enough. To enable companies to perform, compete and evolve, business information systems and processes must be permanently coordinated and fully aligned with their strategies. In today's dynamic business environment, TOGAF can be effectively applied to any business enterprise due to its nature as open consortium framework. This is a series of operations aimed at developing software to meet customer requirements and obtaining solutions through cross-functional teams. Prior to ITIL and TOGAF combination, the mapping process to understand the overall knowledge, perspectives and characteristics of both methodologies and to coordinate strategies makes appropriate transition based on workflow, continuous learning and organizational culture. ITIL can interact with IT service providers and the business world to facilitate compliance with TOGAF principles regarding business requirements and ongoing business communications. From an ITIL perspective, this process provides a comprehensive understanding of the company's initial requirements. TOGAF will then help you prioritize your requirements as can be seen in Fig. 2. The concept of service level management complements the management of business relationships related to non-functional requirements.

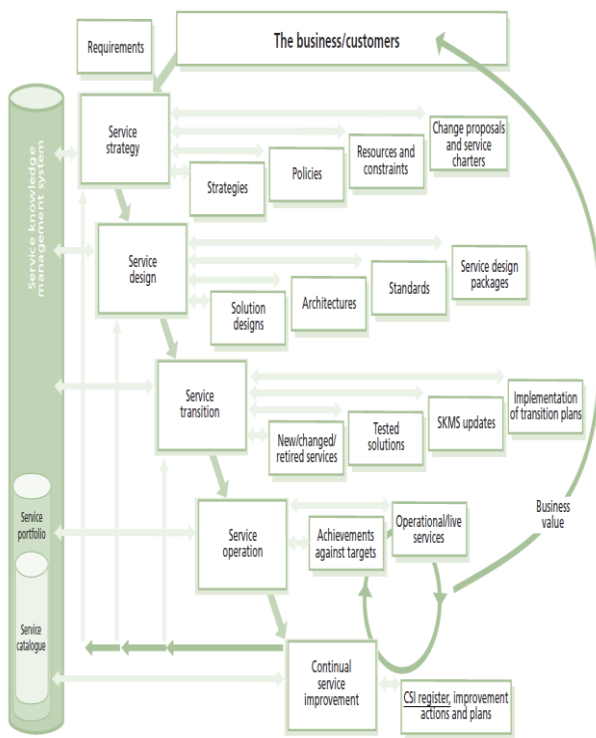


Fig. 1. Lifecycle of ITIL Integration.

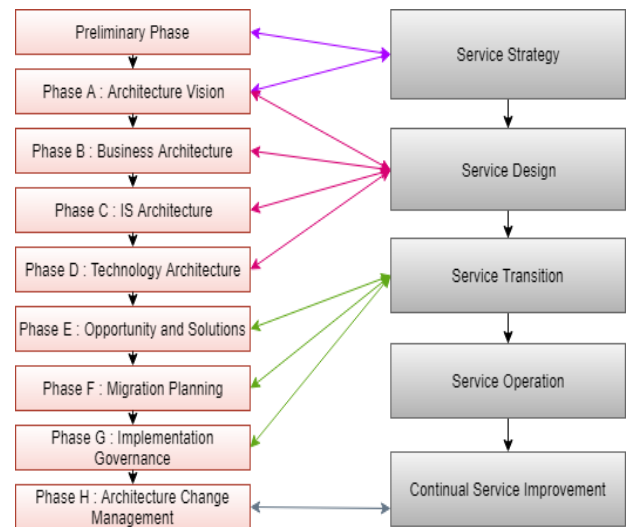


Fig. 2. TOGAF and ITIL Mapping.

IV. RESULT AND ANALYSIS

A. Mapping the Function and Structure

In carrying out their respective functions, it is necessary to map the organizational structure into a diagram. The organizational structure is a picture that describes the type of organization, the position of the organization's department, and the type of authority of the official, the field and work relations, the line of command and responsibility, the span of control and the organizational leadership system. The organizational structure of a company displays a hierarchy that contains the components that make up the company, which clearly describes the position, function, rights and obligations of each position within the scope of the company, as well as the work relationship between individuals. With the existence of an organizational structure, it can be seen the work relationship between units and roles within the company so that it is able to build good communication in running the company's business. Another goal is that each component in the company can function optimally and be able to move the wheels of the company efficiently and effectively as they should. In carrying out their respective functions, it is necessary to map the organizational structure into a diagram. The organizational structure is a picture that describes the type of organization, the position of the organization's department, and the type of authority of the official, the field and work relations, the line of command and responsibility, the span of control and the organizational leadership system.

Executives need to set the direction for IT initiatives. They need to establish policies regarding obtaining, using, and disposing of company information assets. Business priorities are set when the value is expected to be realized only by the business executives, as the sponsors or protagonists can drive the realization of value from IT related projects. Information technology itself cannot provide value. Therefore, business policies must be translated into IT organization priorities and projects. It is important to have this partnership to ensure that the right IT priorities are set. Means of the governance process for these include steering committees, IT business coordinators, resource and budget allocation processes, IT

organizations, and evaluation. However, IT executives must play their part in prioritizing workloads that are rated as the biggest hurdles by non-IT executives [39].

B. Service Strategy

IT is an important facilitator for today's organizations to function properly by allowing IT companies to change the way they organize their business processes, communicate with their customers, and provide services. A consistent description of the different focus areas in EA can provide insights, enable communication between stakeholders and guide complex transformation processes. At the same time, the emergence of new products and services is often separated by many companies or enterprises' IT such as IT and IT products that support business and management components, or those embedded in products and industrial automation. It should be tightly integrated into what supports. One of the potential benefits of such an integration is the ease of accessing the data collected by a large number of instances of the product's IT during operation. Enterprise architecture is likely to be a vehicle to support both the ongoing coordination of business and information technology, product-specific IT integration and enterprise IT [40]. Service strategies provide a direction for organizations to define their business strategies and are effectively supported by IT strategies through several key activities such as market definition.

A sufficient set of EA focal areas allow you to design your organization in a "sufficiently appropriate" way to minimize resource use within EA modeling. In this case, it may be appropriate to reduce the number of typical focus areas. A possible way to do this is to integrate people and network focus areas into the organizational structure and integrate jobs and time into business processes. An enterprise architecture that supports and improves enterprise operations, aligns business with integrated enterprise information systems, responds to change, and helps organizations present their business strategies [41]. Additionally, the expert advisor can be used as a means to coordinate business and IT strategies, developing innovative ways to rethink the scope of business processes using management-related information and IT resources to drive effectiveness. [42]. However, the competitive advantage depends on customer satisfaction, process life cycle, resource management, task allocation and scheduling, estimated cost [43], and core competencies related to maintainability and sustainability.

As the environment changes and business needs change rapidly, executives need to be updated every time to manage their business more effectively. Companies need to make information available not only at the business unit level, but also at the organizational level. To improve information at the organizational level, you need to incorporate all the information held by your business unit. Computers are now the most important thing in data processing, as computer media is now used by almost everyone in all disciplines and it increases the power of computers in terms of physical form, equipment, software, and hardware. The increasing need for data and information in the business functions of higher education institutions is the driving force behind the use of information systems [43]. Today's IT development is growing rapidly and has a huge impact on the endless business competition between

companies with information technology plays an important role in business activities.

Simplification of the business processes can increase the productivity and profits. As a result, many companies want to use better technology as a basis for competing with their companies and other competitors. The better the technology you use, the more competitive your company will be and the greater your ability to achieve your goals. It can also improve the service with customer care, production and business innovation [44]. In the information system engineering stage, the data to be achieved and the applications to be built are combined to meet architectural principles and visions and enable business engineering visualization. Therefore, all companies that want to improve the effectiveness of their business operations and want to be superior to other companies in the commercial competition strive to implement information technology in their business [45], [46]. Unfortunately, the vast majority of organizations try to create synergies, but ultimately they are separated in a piecemeal fashion that makes it difficult to find and manage results. Creating synergies requires more than just concepts and strategies. An enterprise value proposition outlines a strategy for creating value through alignment, but does not explain how to achieve it. The alignment strategy should be complemented by the alignment process. The amendment process, as well as budget preparation, should be part of the annual governance cycle. When plans change at the company or business unit level, executives may need to readjust their organization in new directions.

C. Service Design

Service design provides guidelines for developing services and service management processes. It covers design principles and methods for transforming strategic goals into a portfolio of services and service assets. To achieve a competitive advantage, technology development requires good planning. EA often links a company's technical systems to elements of strategic management. It is also a technical and management practice that aims to improve the performance and quality of a company by helping to design technical resources, business processes, and strategic directions to help the company achieve its goals. In addition, the corporate architecture also aims to create a suitable environment for the company so that it can properly implement the business operations according to the corporate strategy. EA frameworks typically consist of business engineering, information engineering, application systems engineering, and infrastructure technology engineering. This is an important way to the company's success and plays a major role in increasing its demands for speed, agility, efficiency and quality [47], [48]. Dynamic business requires more and more data flows to departments to support decision making, timely and efficient sourcing of spare parts, inventory management, accounting, human resources, and product distribution. It gets more complicated with functional units [48].

Consistency between business strategy and information technology is required by the fact that most organizations grow organically and that company design is primarily based on intuition rather than well-defined and executed principles. Actually, the solution can be offered is through business

process improvement or reengineering through analyzing existing processes develops the ability to increase the managerial decision-making, allowing organizations to better understand IT functions by linking business functions with existing IT resources, and is expected to be able to do so. The target business process should accommodate the simplification in the sense not only allowing the automation but also the flexibility and customization in the activity flow [49].

An overview of the fundamental vision of Architecture and Architecture is provided through areas that include business, data, applications, and technology for business applications, technology infrastructure and enterprises. Defining the architectural vision is an important step in an organization's value chain analysis [50]. These companies must make a high level of effort to extract value from their IT infrastructure, align them with strategic objectives, and gain their advantage over their competitors. Service migration improves functionality and improves new or modified services by identifying service requirements when designing services to be effective and fulfilled in the service process and controlling the risk of failure or outage by clarifying the guidelines for moving to operational.

All aspects of the company influence the effectiveness and efficiency of information systems or information technology applications in business processes [51]. EA can provide insights into the current use of IT in business operations. It can also provide insight into the future use of IT in business operations. Finally, the roadmap for the evolution of the IT overview from the current situation to the future, along with the temporary state between them, can support the company's direction in operations and delivery services [52]. Therefore, support activities can add value to the main products a company provides, such as a company's infrastructure, to support the system and support the daily core activities of the company.

Human resource management is related to employee management such as recruitment, training and compensation. It has to work for the identification purpose for the sake of improvement and maintaining the service as the customers' expectation. On the other hand, technology development relates to all techniques for converting inputs into outputs, which helps reduce the amount of time while running the main activity. As can be seen in Fig. 3, the monitoring and controlling architecture should allow the process alignment towards business initiative and plan especially related to validating report and risk management. In addition, financing consists of obtaining the inputs or resources for supplying raw materials and negotiating until the appropriate price is obtained [53].

D. Service Transition

Data Dissemination Diagram is a diagram that describes the relationship between application components, data entities, and business services. The purpose of this artifact is to show the relationship between business services and the applications and data used. This diagram also shows how logical data is physically represented in application components. Unlike the processes and technologies, organizations are made up of different characteristics of people, organizational structures, communication models, and cultures, business processes are

viable and available technologies are critical to the success of ITIL's implementation but the primary ingredient related to the competence and determination of the employee [54], [55]. The main issue with implementing ITIL is the fact that ITIL tells organizations "what they have to do" but "how they should do" is not clear [56], [57]. Today, there is no complete framework that can be used as a comprehensive framework for IT governance to ensure consistency between service management and organizational concepts and manufacturing. In fact, different frameworks are often used as complements, most often at the same time. In addition to the difficulties associated with managing both initiatives, parallel EA and ITIL projects involve overlapping investment and costs. In fact, using a shared infrastructure does not allow you to avoid repeating data, procedures, and personnel or to comply with different initiatives (ITIL and EA) [58].

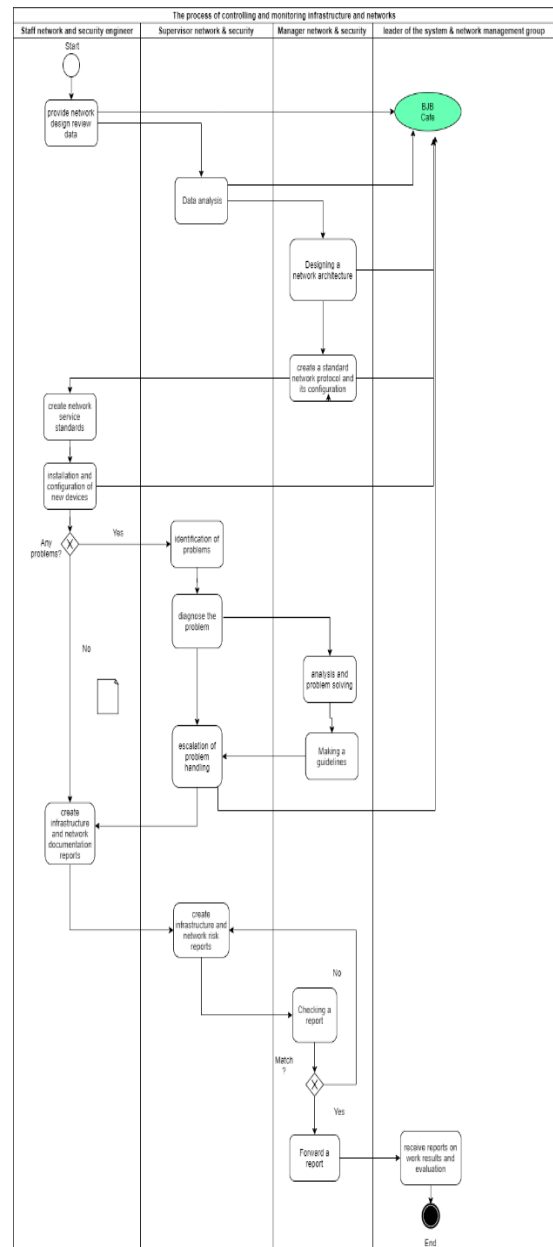


Fig. 3. Controlling and Monitoring Infrastructure.

Brown and Winter [59] proposed an EA extension to incorporate ITIL and SOA. In their proposal, EA is an important concept, but ITIL only considers IT operations. The EA provides an overview of the IT architecture, and ITIL is designated as an important part of the management process for providing services. Along with IT services, the concept of SOA is also integrated into the EA at the application architecture level. ITIL and SOA are integrated into the EA as a framework for providing IT services, and this integrated research focuses only on the IT services provided. On the other hand, Thorne is in close agreement with his previous research, working on the relationship between ITIL and TOGAF, but with a different focus, which mentioned that EA is a spiritually fundamental concept of organizational engineering, with a focus on EA development, and includes ITIL as a framework for the operational model of the IT services provided. In his research, he argued that both frameworks can be used together by mapping the two approaches. TOGAF covers EA development, participates in the conceptual life cycle of products, and ITIL guarantees the delivery and management of IT services to users and consumers [60].

As can be seen in Fig. 4, API or microservice become primary choice in order to allow hybrid infrastructure to be taken in the network management system that accommodate legacy system to be integrated with high end technology. Despite the perceived need for different teams and tools,

TOGAF requires an EA repository and ITIL requires a configuration management database (CMDB), so the two frameworks complement each other. It fits. A recent study [61] promoted by the Prophet of God provides a service-based framework for the EA to meet the ITSM requirements of ITIL V3 and extends the EA to include the service architecture layer of ITIL service design. This indicates that it is necessary. An IT service architecture model has been proposed and is the service layer of EA. However, it does not explain how to do this or the relationships between architectures. Therefore, to be able to implement an effective and efficient system requires planning, implementation, organization, and evaluation according to the needs and values of each organization [62]. Interestingly, previous studies have shown that ITIL adoption has increased, the number of operational benefits achieved has increased, and the level of maturity of business alignment with IT has increased [63]. To maintain results, IT service upgrades identify critical success factors (CSF) as benchmarks for improving IT service implementations. Or achievement, goal conditions need fairness process, recommendations to eliminate gaps that occur in each process. Establish IT service management policies and guidelines that consist of policy documents, standard operating procedures (SOPs), and other related document attachments from operational equivalence. The results of assessing the fairness of the process have led to the achievement of the goal, and there are some records to help the goal be achieved continuously [64].

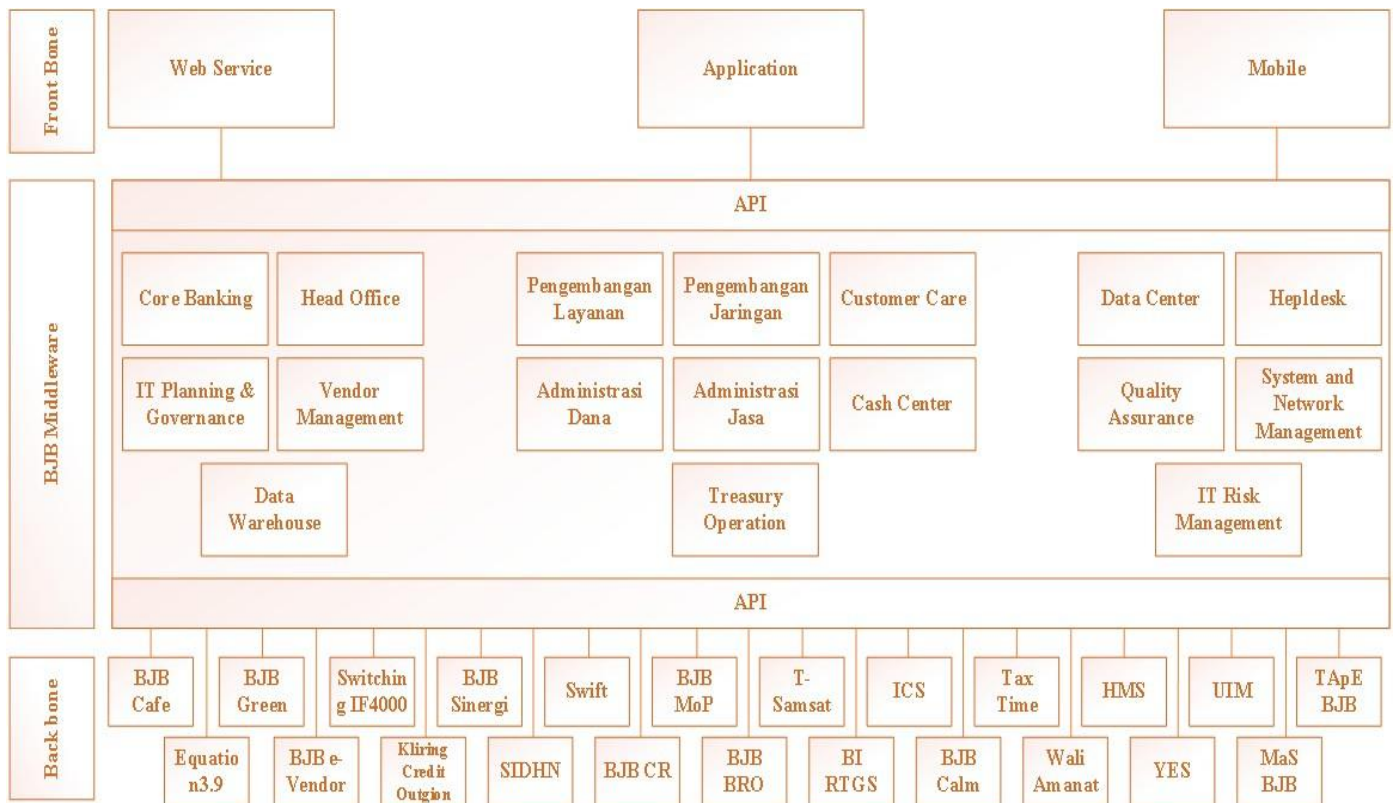


Fig. 4. Targeting Infrastructure Network Management.

Apply information technology in a timely and appropriate manner according to your current business strategy, objectives, and needs to align your business requirements with the relevant IT services. To the extent that IT applications, infrastructure, and organizations enable and support business strategies and operations, including processes, to achieve this by aligning information system (IS) capabilities with business goals [65]. However, many IT development teams do not pay attention to program management frameworks and standards, so planning, reporting and monitoring work results, especially if not all employees of the team have sufficient experience. It becomes difficult to control. It would be desirable for each Software Company and IT consultant to implement common frameworks and standardizations so that the software development process is more oriented and high quality services are produced to increase the business relation [66], [67].

E. Service Operation

As can be seen in Table I, the service operation manages the services the company is currently using, focuses on service management practices, and ensures that the service provider's service to its customers is effectively achieved. Degree 1 (Unstructured Data Exchange), is an unstructured data exchange. Degree 2 (Structured Data Exchange), is a structured data exchange and has certain method. Degree 3 (Seamless Sharing of Data), is an exchange of data using a system so that the data has been automated. Degree 4 (Seamless Sharing of Information), is a continuation of Degree 3 where information exchange occurs in real time. Code for data types includes A: Formal message exchange, B: Common data exchange, C: Complete data exchange and D: Real-Time data exchange.

TABLE I. IT OPERATION

		IT Operation			
		IT handling Problems	IT Asset Governance	System Testing	Secured Application and Users
IT Operation	IT handling Problems	4D	4D		4D
	IT Asset Governance	3C	4D		3C
	System Testing	2B		4D	3C
	Secured Application and Users	3C		2B	4D

Creating business value is generally discussed as an established, thoughtful, and anticipated process that revolves around the maturity of the process and the capabilities of the target organization [68]. Consistency with business needs, achievable level of service through negotiation, predictable and consistent operation, efficiency of service delivery, services and processes that can be measured and improved, IT services and potential current and future business needs. A common language that defines alignment, improved quality of IT services, and long-term costs for delivering short-term services, better communication between suppliers and customers, and terms [69]. Lack of project management contributes significantly to project failure without communication or

tracking of employee comments throughout the ITIL implementation process. Administrators sought to implement ITIL as part of their business rather than as a project, without considering a stable organizational culture.

According to end users, most employees weren't interested in implementing ITIL because top management didn't notify them of the need for ITIL, and most employees weren't willing to commit to the project. It should be noted that after management began asking about their lack of commitment to new processes, employees began to change their behavior towards ITIL certification in their relevant duties [70]. The research results shown that the most mentioned factors for implementing ITIL are training (21%), senior management commitment (18%), awareness (11%), and change management (9%). %, operational implementation and maintenance (7%) and project management (7%) [71]. Changes in organizational culture can be laborious and time consuming and can be difficult to achieve within the scope and time frame of a process project such as ITIL. Open and honest relationships with vendors are important and are usually discussed in the context of strategic and long-term outsourcing projects. Effective coordination between multiple vendors is critical to a successful implementation [72].

The facilitative condition is required in the implementation, which is defined as the degree to which an individual believes that there is an organizational and technical infrastructure to support the use of the system. If there is a top management commitment, this will provide the project with the resources and funding needed to train consultants, staff, and acquire the necessary skills [73]. Understanding the reasons behind the success or failure of an ITIL implementation requires an analysis of the types of problems by corporate actors regarding the relevance of the ITIL critical success factors implementation and their reflexive self-judgment. Employees make their own decisions and act in ways that enhance or weaken the rationalization of IT department resources [74]. Therefore, to support organizations in the IT sector and to make them more service-oriented, current best practices need to include a modern service-oriented perspective [75]. Competitiveness is the sum of all the factors that contribute to business continuity in a competitive environment, and understanding the importance of adopting good business practices by a company is a continuous activity that provides a competitive advantage that is useful for expansion.

This can be defined as gaining a position in a favorable, profitable and sustainable market, making it difficult to enter new competitors and efficiently searching for new markets. The data show that companies are more interested in results related to the operational part of information technology, and do not show focus, management, or oversight related to management's strategic vision. There may be other factors related to the corporate culture. It prioritizes operational activities due to the business impact on innovation. This includes different types of changes, depending on your organization's resources, capabilities, strategies, and requirements [76], [77]. It is imperative that each organization analyze the context listed for market demand, as there is room to implement innovation in the industry without investigating or analyzing its impact on competitiveness.

F. Continual Service Improvement

Continuous Service Improvement (CSI) has room for improvement at all stages of the service lifecycle by measuring and improving the efficiency, effectiveness, service levels, technologies, and processes used to manage the entire service, which in the end support on how to identify the area. The most important goal of an IT plan is always to align IT features and activities with business objectives and requirements, such as making decisions about the scope, size, and pace of IT projects. However, aligning IT with business goals requires a stable, reliable, and relatively homogeneous business foundation in the form of a widely accepted, committed transportation plan. Unfortunately, the availability and reliability of this business plan is arguably the best for most organizations. Even if available, the business plan often expires after the IT planner accepts the business plan. In many cases, the time lag between the business planning process and the IT planning process is too long to allow [78]. In conducting business operations, organizations face specific challenges, issues, and issues that arise from the expectations of their respective sectors and clients. In general, satisfaction comes from comparing emotions that resemble a passenger's image with real or physical situations. Dissatisfaction does occur when the actual situation does not meet the customer's terms and standards [79]. However, simplifying business processes by eliminating unnecessary areas and activities is the first step for an organization to better control and manage the flow of infrastructure development.

In fact, attention should be paid to the impact of organizational changes that are consistent with growing interest in strategies for creating an appropriate organizational culture with project managers and leadership action capabilities [80]. Unfortunately, many large companies are inefficient in implementing their needs applications due to the difficulty of implementation and the complexity of the implementation process [81]. When you start using the product, the executive can add value in the form of personalization or personalization to increase user participation, and when starting to use the required product, the social or environmental awareness of distribution by the general approach of representing the finished product through certain changes cause many problems. Knowing the right things about the company's business processes can create a specific model for more effective and efficient user engagement lead to continual improvement taking into account the many factors that a company can consider implementing software, which is expected to be possible in the long term execution [82]. By linking IT and business with ITIL, you can strengthen communication between IT and business, share knowledge, increase efficiency, and link activities within your organization [83]. With ITIL, you help deliver value by increasing effectiveness, competition and market space while increasing customer satisfaction. The resource department is responsible for protecting the confidentiality, availability and integrity of service assets by providing accurate configuration information and ensuring that only allowed components and allowed changes are used [84], [85].

The role of technology in banking has already been mentioned several times, but given its widespread impact at the enterprise level, the use of technology and automation is also worth paying attention to individually as part of an overall efficiency improvement effort with comprehensive goals are in three aspects. Firstly, providing an application that allows customers to execute transactions and obtain information on a self-service basis without the effort of employees. Secondly, using the technology to reduce the time employees spend searching for information. Lastly, using the automated business rules and decision making models to move work faster and more efficiently throughout your business. Improving vendor management does not just mean putting pressure on sellers to lower prices. Rather, it is a focused effort designed to maximize the value possible from the seller's relationship. Choosing a vendor that closely matches your bank's business goals is important. Maintaining strong vendor performance is supported by SLAs and vendor scorecards for monitoring performance issues such as system availability, response time, and direct costs. These tools help you get a more complete picture of your vendor relationships. Ultimately, improving the organizational success and profitability of a bank requires more than just efficiency. Successful banks must be able to provide value and service to their customers at competitive prices and still generate acceptable profits.

There is no one-size-fits-all approach. Some banks are actively promoting electronic account opening, remote capture of deposits via smart devices, and accounts designed to be virtually paperless. Other banks with large corporate customers often take a completely different approach, focusing on personalized services by relationship managers and support teams dedicated to each eligible account. The high-value businesses created by this approach can offset the additional costs. Other useful tools include visual metrics and performance charts, as well as "in-line" incentives such as rewards that are directly related to individual or group performance and practices, as well as organizational performance and resilience.

Many organizations have also succeeded in redefining work roles, using more flexible work arrangements, providing mobility for offsite work, and outsourcing more professional activities. Electronic documents can be step-by-step with minimal delay and virtually no additional cost. Most importantly, electronic imaging enables parallel processing of documents, allowing multiple steps in progress of a transaction to be completed at the same time. Of course, digital signatures, signature panels, and online processes can often take you one step further by eliminating paper altogether. Technology not only helps automate core processes, but also plays a clear role in efforts to improve banking channels. This affects not only how customers interact with banks, but also how banks communicate important information internally and manage sales and customer relationship activities. Other basic ways to reduce costs include integrating vendors and measuring costs for similar services on the market. Also, keep in mind that vendor relationships can affect a regulator's view of a company's risk profile as can be seen in table II that showed the roadmap for prompment and maintaining the demand.

TABLE II. ROADMAP

No	Project	Estimation Duration (Month)	Period																			
			Year-1				Year-2				Year-3				Year-4				Year-5			
			T W 1	T W 2	T W 3	T W 4	T W 1	T W 2	T W 3	T W 4	T W 1	T W 2	T W 3	T W 4	T W 1	T W 2	T W 3	T W 4	T W 1	T W 2	T W 3	T W 4
1	BJB Middleware	10																				
2	bjb CR	6																				
3	IT Infrastruktur Planning	10																				
4	MaS BJB	7																				
5	BJB Sinergi	6																				
6	Tax Time	6																				
7	bjb MoP	7																				
8	BJB e-Vendor	5																				
9	TApE BJB	6																				
10	bjb BRO	6																				

The alignment will give better understanding of business management about the importance of information systems, while at the same time improving your understanding of business goals and objectives. Through technological innovation, information systems managers are also increasing the return on IS investment [86]. Indeed, the strategic integrity of business and information systems has been consistently reported as a major concern for business and IT managers in various industries. IT business integration gives organizations greater flexibility and increases the return on their IT investment. This will increase profitability and maintain competitive advantage. Therefore, failure to take advantage of information technology can have a significant negative impact on a company's performance and survival [87]. Business and Information Technology (IT) safety refers to the optimal synchronization of business objectives, dynamic processes and related technical services provided by information technology innovation. This has been taken into account by researchers, IT executives, and consultants since the early 1970s [88]. The stronger impact on financial performance was driven by operational adjustments that suggested that achieving the link between the organization and the IT infrastructure was of prime importance to the model organization. Indeed, it has been suggested that infrastructure and coordination of operations are more important than information technology and business strategy coordination [89].

V. CONCLUSION

The complexity of the existing problems with the development of Information Technology is directly proportional and has penetrated various industrial sectors. In the IT Operation function, namely: IT management and management that has not been good, limited automation, control of information security that is less effective, and

technological infrastructure that does not support business needs. Some of the problems mentioned certainly cause many parties to be disadvantaged, especially the company's business operations and allow for over and even low budget in the company. Another impact obtained is that it can pose a fatal risk in the development of IT that allows fraud to occur so that the Management Information System (MIS) becomes unreliable. It also causes delays when processing reports between units and from branch offices to the center. In its design, EA uses a framework that will provide a blueprint that is used systematically to identify the current state of the company and the desired IT architecture design. Besides, to achieve alignment between IT strategies and business strategies that support optimization of IT governance, a best practice is needed that is used as a foundation for company operational services. The integration between the framework and best practice is expected to complement each other and produce an EA design to support the achievement of the company's strategic goals. Development bank as government owned company engaged in banking that uses the key performance index as an indicator used to determine how far the strategy has been carried out by the company by the company's vision and mission. Therefore, it is expected for verification and validation model can be utilized to evaluate project that has been delivered in respected period as well to analyze the benefit delivered that align with IT business perspectives.

REFERENCES

- [1] N.A. Hamidi, M. Rahimi G.K., A. Nafarieh, A. Hamidi and B. Robertshon, "Personalized Security Approaches in E-Banking Employing Flask Architecture over Cloud Environment". *Procedia Computer Science* 21, 18-24, 2013.
- [2] A. Kousaridas, G. Parissis, T. Apostolopoulos. "An Open Financial Services Architecture based on the Use of Intelligent Mobile Devices". *Electronic Commerce Research and Applications* 7, 232-246.

- [3] D. Kellezi, C. Boegelund and W. Meng, "Towards Secure Open Banking Architecture: An Evaluation with OWASP". NSS, LNCS 11928, 185-198, 2019.
- [4] M. Lubis, M. Saputra and W.A. Nurtrisha, "Financial Technology Development Framework for Prosperity of the Nation and Potential Direction". *ACM ICCCM 2021*.
- [5] S. Heydari, M.H. Shakib and A. Khamseh, "IT-Business Strategic Alignment and Organizational Agility: The Moderating Role of Environmental Uncertainty," *Journal of System Management*, vol 1, 35-52, 2020.
- [6] A. Al-Surmi, C. Guangming and D. Yanqing, "The impact of aligning business, IT, and marketing strategies on firm performance," *Industrial Marketing Management*, 84, pp. 39-49, 2020.
- [7] K. Harsch and M. Festing, "Dynamic talent management capabilities and organizational agility—A qualitative exploration," *Human Resource Management*, 59(1), pp. 43-61, 2020.
- [8] S. Panda and S. Rath, "Strategic IT-business alignment and organizational agility: from a developing country perspective," *Journal of Asia Business Studies*, Vol. 12 No. 4, pp. 422-440. 2018. <https://doi.org/10.1108/JABS-102016-0132>.
- [9] A.S. Eldin, A. Elnour and R. Hassan, "Process Level Social Media Business Value Configuration of SMEs in Saudi Arabia," *Int. Journal of Advanced Comp. Science and Application*, vol. 11(11) 2020.
- [10] F. Almeahmadi, "Developing an Information Management Strategy e-Government in Saudi Arabia," *Int. Journal of Advanced Comp. Science and Application*, vol. 11(11) 2020.
- [11] P. Appiahene, N. Ussiph and Y.M. Missah, "Information Technology Impact on Productivity: A Systematic Review and Meta-Analysis of the Literature," *Int. Journal of Information Communication Technologies and Human Development* vol. 10(3), pp. 39-61, 2018.
- [12] J.D. Twizeyimana and A. Andersson, "The Public Value of E-Government – A Literature Review," *Government Information Quarterly* vol. 36(2), pp. 167-178, 2019.
- [13] M. Scott, W. DeLone and W. Golden, "Measuring eGovernment Success: A Public Value Approach," *European J. of Information Systems* vol. 25(3), 2016.
- [14] J. Benitez, A. Castilo, J. Llorens and J. Braojos, "IT-enabled Knowledge Ambidexterity and Innovation Performance in Small U.S. Firms: The Moderator Role of Social Media Capability," *Information & Management* vol. 55(1), pp. 131-143, 2018.
- [15] I. Kawtar, B. Salah and D. Karim, "Impact of Change in Business IT Alignment: Evaluation with CBITA Tool," *Int. Journal of Adv. Computer Science and Applications* vol. 11(10), 2020.
- [16] O. Avila and K. Garces, "Change Management Support to Preserve Business-Information Technology Alignment," *J. of Computer Information Systems* vol. 57(3) 2017.
- [17] A. Asil and N. F-H. Farahmand, "Design and Implementation of Strategic Agility Evaluation Model with Structural Equation Modelling Approach," *Research Article* 18(1) 2019.
- [18] D.A. Almajali and Z.M. Dahalin, "Factors Influencing IT-Business Strategic Alignment and Sustainable Competitive Advantage: A Structural Equation Modelling Approach," *Communications of the IBIMA* 261315, 2011.
- [19] M. Henriques, J.B. de Vasconcelos, G. Pestana and A. Rocha, "Strategic Alignment IT-Business: Towards a Proactive e-Public Sector," *J. of Information Systems Engineering & Management* 4(2), 2019.
- [20] M. Henriques, J.B. de Vasconcelos, G. Pestana and A. Rocha, "IT-Business Strategic Alignment in Social era," 14th Iberian Conf. on Information Systems and Technologies, IEEE 2019.
- [21] A.R Ahlan, M. Lubis and A.R. Lubis, "Information Security Awareness at the Knowledge-based Institution: Its Antecedents and Measures," *Procedia Computer Science* 72, pp. 361-373, 2015.
- [22] E. Rosmaini, T.F. Kusumasari, M. Lubis and A.R. Lubis, "Insight to Develop Privacy Policy in Indonesia," *Journal of Physics: Conference Series* 978, 2018.
- [23] M. Lubis, A.R. Lubis, B. Lubis and A. Lubis, "Incremental Innovation towards Business Performance: Data Management Challenges in Healthcare Industry in Indonesia," *MATEC Int. Conf. on Industrial Electrical and Electronics (ICIEE)* 2018.
- [24] M. Lubis, A.R. Lubis and E. Ernoviati, "Disruptive Innovation Service Oriented Framework: A Case Study of Transportation in Indonesia," *Scitepress, Int. Conf. on Multidisciplinary Research (ICMR)* 2018.
- [25] A. Widjajarto, M. Lubis and U. Yunan, "Architecture Model of Information Technology Infrastructure based on Service Quality at Government Institution," *Procedia Comp. Sci.* 161, pp. 841-850, 2019.
- [26] S.T.N. Andi, A.A.N. Fajrillah and M. Lubis, "IT Roadmap to Improve Business Strategy using TOGAF ADM: A Case Study of Government-Owned Electricity Company," *J. of Physics: Conf. Series* 1361, 2019.
- [27] M. Lubis, H.H.R. Ananza and F.D. Suryaputro, "Analysis and Design of Policy and Standard Operating Procedure for Information Technology in the Communication and Information Services Department," *IEEE Int. Conf. on Interactive Digital Media* 2020.
- [28] M. Lubis, M. Fathoni and A.R. Lubis, "New Product Development Architectural Framework for Sustainability and Innovation within Telecommunication Industry," *ACM Int. Conf. on Computer and Communications Management* 2020.
- [29] A.M. Jannah, M. Lubis, R.R. Saedudin and F.D. Suryaputro, "Designing the Smart Health Function towards Puskesmas (Citizen Health Centre) based on Smart City Concept," *IOP Conf. Series: Materials Sc. and Engineering* 847, 2020.
- [30] M. Lubis, R.C. Annisyah and L.L. Winiyanti, "ITSM Analysis using ITIL v3 Service Operation in PT. Inovasi Tjaraka Buana," *IOP Conf. Series: Materials Sc. and Engineering* 847, 2020.
- [31] A.E. Wardani, A.A.N. Fajrillah, S.F.S. Gumilang and M. Lubis, "Project Evaluation for Business and IT Alignment with Enterprise Architecture for Water Distribution Company," *J. of Physics: Conf. Series* 1361, 2019.
- [32] M.K. Haris, A.A.N. Fajrillah and M. Lubis, "Business Value Assessment for Global Service Provider Industry: Opportunities and Solution," *J. of Physics: Conf. Series* 1361, 2019.
- [33] S. Charoensuk, W. Wongsurawat and K.D. Ba, "Business-IT Alignment: A Practical Research Approach," *The Journal of High Technology Management Research* 25(2), 2014.
- [34] S. Baina, P-Y. Ansias, M. Petit and A. Castiaux, "Strategic Business/IT Alignment using Goal Models," *Proc. Of BUSITAL* 2008.
- [35] A.J.G. Silvius, B. de Waal and J. Smit, "Business and IT Alignment; Answers and Remaining Questions," *Pacific Asia Conference on Information Systems*, 2009.
- [36] A. Ghildyal and E. Chang, "IT Governance, IT/Business Alignment and Organization Performance for Public Sectors," *Journal of Economics, Business and Management*, vol. 5(6), 2017.
- [37] M.A. Ardakan, H. Hatefian and Y. Gorji, "Aligning IT and Business Strategies Adopting an HOQ, a Case Study in a Large Scale Iranian Bank," *Int. Conf. on Information and Financial Engineering, IPEDR* vol. 12, 2011.
- [38] K. Doumi, S. Baina and K. Baina, "Strategic Business and IT Alignment: Representation and Evaluation," *J. of Theoretical and Applied Information Technology* vol. 47(1), pp. 41-52, 2013.
- [39] J. Luftman, R. Papp and T. Brier, "Enablers and Inhibitors of Business-IT Alignment," *Communications of the Association for Information Systems* vol. 1(11), 1999.
- [40] J. Kaidalova, "Enterprise Architecture Modeling for Business and IT Alignment," *PoEM, Short and Doctoral Consortium Papers*, pp. 108-116, 2015.
- [41] E.D. Madyatmadja, J.F. Andry and A. Chandra, "Blueprint Enterprise Architecture in Distribution Company using TOGAF," *J. of Theoretical and Applied Information Technology* vol. 98(12), 2020.
- [42] A. Fergina and I.D. Sumitra, "Designing Enterprise Architecture Planning in Mobile News Applications using TOGAF ADM," *IOP Conf. Series Materials Sc. And Engineering* 662:022098 2019.
- [43] B. Imbing and J. Andry, "Enterprise Architecture Planning for Contata Music School Institute using Zachman," *Journal of Systems Integration* 3, 2019.

- [44] M.M. Mei and J. Andry, "The Alignment of Business Process in Event Organizer and Enterprise Architecture using TOGAF," *Jurnal Ilmiah Teknologi Informasi* vol 17(1), pp. 21-29, 2019.
- [45] F.A. Pasaribu, J.H. Sipahutar, B.P. Situmorang, S. Sfenrianto and E.R. Kaburuan, "Designing Enterprise Architecture in Hospitals Group," *Int. Conf. on Inf. and Communications Technology (ICOIACT)* 2019.
- [46] P. Ranting and J. Andry, "Re-design Business Process at Forwarding Company Based on Enterprise Architecture Planning," *Int. J. of New Media Technology (IJNMT)* vol. VI(2), pp. 68-73, 2019.
- [47] H. Tannady, J. Andry and F.E. Gunawan and J. Mayselste, "Enterprise Architecture Artifacts Enablers for IT Strategy and Business Alignment in Forwarding Services," *Int. J. of Adv. Trends in Comp. Science and Engineering* vol. 9(2), pp. 1465-1472, 2020.
- [48] B.G. Sudarsono, J. Andry and N. Az, "Design Information System Order Fulfillment using Archimate Modelling," *Int. J. of Advanced Trends in Comp. Science Engineering* vol. 9(2), pp. 1303-1310, 2020.
- [49] B.G. Sudarsono, J.S. Antouw, J. Andry and A. Sani, "Enterprise Architecture Landscape using TOGAF Framework for Offshore Company," *Test Engineering and Mgmt* vol. 83, pp. 16880-16889, 2020.
- [50] N. Zulfarian and I.D. Rosiyadi, "Designing Enterprise Architecture for Academics Information System Platform using the Open Group Architecture Framework Architecture Development Method," *IOP Conf. Series Materials Science and Engineering* 879:012066, 2020.
- [51] B.G. Sudarsono, J. Andry, P. Ranting and A. Abd. Rahman, "Redesign the Forwarding Company's Business Process using the Zachman Framework," *J. of Theoretical and Applied Infor. Technology* v. 98(16), pp. 3222-3232, 2020.
- [52] F.S. Lee, C. Aziza, R. Nathanael and J. Andry, "Architecture Information System in Electrical Distribution Company using TOGAF," *Int. J. of Advanced Trends in Computer Sc. and Engineering* vol. 9(5), pp. 7149-7156, 2020.
- [53] R.E. Riwanto and J. Andry, "Designing Enterprise Architecture Enable of Business Strategy and IS/IT Alignment in Manufacturing using TOGAF ADM Framework," *Int. J. of Information Technology and Business* vol. 1(2), 2019.
- [54] N. Gama, R.N. da Silva and M.M. da Silva, "Using people-CMM for diminishing resistance to ITIL," *Int. J. of Human Capital and Inf. Tech. Professionals* vol. 2, pp. 29-43, 2011.
- [55] R.F.D. Pereira and M.M. da Silva, "A maturity model for implementing ITIL v3," *6th World Congress on Services* 2010.
- [56] M. Marrone and L. Kolbe, "ITIL and the Creation of Benefits: An Empirical Study on Benefits, Challenges and Processes," *18th European Conf. on Inf. Systems* 2010.
- [57] A. Lahtela and M. Jantti, "Improving IT service management processes: a case study on IT service support," *17th European Conf. Systems, Software and Services Process Improvement* 2010.
- [58] N. Gama, P. Sousa and M.M. da Silva, "Integrating Enterprise Architecture and IT Service Management," *21st Int. Conf. on Information Systems Development* 2012.
- [59] C. Braun and R. Winter, "Integration of IT Service Management Into Enterprise Architecture," *ACM Symposium on Applied Computing*, pp. 1215-1219, New York, 2007.
- [60] S. Thorn, "TOGAF and ITIL". The Open Group (ed.), vol. Catalog number W071, pp. 26, San Francisco 2007.
- [61] A. Nabiollahi, R.A. Alias, S. Sahibuddin, "A Service Based Framework for Integration of ITIL V3 and Enterprise Architecture," *International Symposium in Information Technology (ITSim)*, vol. 1, pp. 1-5, Kuala Lumpur 2010.
- [62] H. Tannady, J. Andry, Y.T. Suyoto and A. Herlian, "Business Architecture of Public Guest Service for University using TOGAF ADM Framework," *Technology Reports of Kansai University* vol. 62(5), pp. 2421-2428, 2020.
- [63] M. Marrone and L.M. Kolbe, "Uncovering ITIL claims: IT executives' perception on benefits and Business-IT alignment," *Inf. Systems and e-Business Management* vol. 9(3), pp. 363-380, 2011.
- [64] A. Hermanto and G. Kusnanto, "Evaluation of the information technology system services for medium higher education based on ITIL (a case study of polytechnic XYZ)," *4th Int. Conf. on Computer App. and Inf. Processing Technology* 2017.
- [65] N. Zeinolabedin, M. Khademi and N. Rahbar, "Assessing efficiency of ITIL framework to align business and IT," *Research Inventy: Int. J. of Engineering and Science*, vol. 2(5), pp. 13-26, 2013.
- [66] H.F. Rahmani and E. Hikmawati, "Combining SDLC Method and ITIL Framework by Involving Auditors," *Jurnal AKSI (Akuntansi dan Sistem Informasi)* vol. 5(1), pp. 6-12, 2020.
- [67] H.N. Prasetyo, "Maturity Level of Business Relation Services based on ITIL Framework in Digital Start up X Indonesia," *Test Engineering and Management* 83, pp. 8043-8049, 2020.
- [68] J. Cusick, "Business value of ITSM. Requirement or mirage," *Advancing IT and Software Engineering*, January 2020.
- [69] A.S. Alqahtani, "Critical Success Factors in Implementing ITIL in the Ministry of Education in Saudi Arabia: An Exploratory Study," *Int. J. of Advanced Computer Science and Applications* 8(4), 2017.
- [70] N. Ahmad and Z.M. Shamsudin, "Systematic Approach to Successful Implementation of ITIL," *Procedia Computer Science* vol. 17, pp. 237-244, 2013.
- [71] S. Sebaaoui, M. Lamrini, A. Bouayad and L. el Abbadi, "Design of an ITIL implementation model in a company," *Information systems* 2019.
- [72] N. Hajihyadari and S. Mehravani, "ITIL Adoption Critical Success Factors: Applying Meta-Synthesis Approach," *Int. Conf. on Future Information Technology* 2010.
- [73] N. Ahmad, N.T. Amer, F. Qutaifan and A. Alhilali, "Technology adoption model and a road map to successful implementation of ITIL," *J. of Enterprise Information Management* vol. 26(5), 2013.
- [74] A. el Yamami, S. Ahriz, K. Mansouri, M. Qbadou and E. Illoussamen, "Developing an Assessment Tool of ITIL Implementation in Small Scale Environments," *Int. J. of Advanced Com. Science and App.* 8(9), 2017.
- [75] S. Cronholm, H. Gobel, M. Akesson, "ITIL Compliance with Service-Dominant Logic," *e-Service Journal* 11(2), 2020.
- [76] J. Schaefer, I.C. Baierle, E. Nara, G.B. Benitez and C. Haetinger, "Corporate Governance and Information Technology: A Hybrid Vision based on COBIT and ITIL for Small Companies," *XL encontro Nacional de Engenharia de Producao* 2020.
- [77] I.C. Baierle, G.B. Benitez, E. Nara, J. Schaefer and M.A. Sellitto, "Influence of open innovation variables on the competitive edge of small and medium enterprises," *J. of Open Innovation Technology Market and Complexity* vol. 6(4), 2020.
- [78] R. Alit, S. Sugiarto and M. Idhom, "Evaluation of Information Technology Infrastructure Management using IT Balanced Scorecard and COBIT Framework 4.1 on Domain Deliver and Support," *Proc. of the International Conference on Science and Technology* 2018.
- [79] M. Lubis, R. Fauzi, A.R. Lubis and R. Fauzi, "A Case Study of Universities Dormitory Residence Management System," *16 th Cyber and IT Service Management (CITSM)* 2018.
- [80] M. Lubis, R. Fauzi, A.R. Lubis and R. Fauzi, "Analysis of Project Integration on Smart Parking System in Telkom University," *16 th Cyber and IT Service Management (CITSM)* 2018.
- [81] L. Syafrialiany, M. Lubis and R.W. Witjaksono, "Analysis of Critical Success Factors from ERP System Implementation in Pharmaceutical Fields by Information System Success Model," *4th International Conference on Informatics and Computing (ICIC)* 2019.
- [82] M. Lubis, I.R. Wardhani and R.W. Witjaksono, "Examining the Means of Engagement (MOE) for Enterprise Resource Planning (ERP) Adoption in Indonesia: Factors and Measures," *3rd Int. Conference on Electrical, Telecommunication and Com. Engineering (ELTICOM)* 2019.
- [83] M. Gervalla, N. Preniqi and P. Kopacek, "IT Infrastructure Library (ITIL) Framework Approach to IT Governance," *IFAC PapersOnLine* 51(30), pp. 181-185, 2018.
- [84] G. Shaykhian, K. Said and G. Alqarna, "ITIL Its Effectiveness: Decision Makers' Perspectives," *Annual Conference & Exposition* 2019.
- [85] H. Metin, N. Preniqi and M. Gervalla, "The Effect of the Organizational Culture, Organizational Structure and Usage of Social Media on

- Corporate Governance,” International Conference University for Business and Technology 2017.
- [86] R.M. Kekwaletswe and P.C. Mathebula, “Aligning Information Systems Strategy with the Business Strategy in a South African Banking Environment,” Proc. of the Conf. for Information Systems Applied Research 2014.
- [87] P.V. Malyzhenkov and M.I. Ivanova, “An Architectural Approach to IT-Business Alignment,” Information Systems and Technologies in Business vol. 3(41), pp. 56-64, 2017.
- [88] A. Ullah and R. Lai, “A Systematic Review of Business and Information Technology Alignment,” ACM Transaction on Management Inf. Systems vol. 4(1/4), 2013.
- [89] W. Afandi, “The Impact of Strategic IT-Business Alignment: Evidence from Saudi Private and Midsize Enterprises,” Int. J. of Business and Social Science vol. 8(10) 2017.