

Blueprint of Perceived Convenience Indicators towards the Quality of Infrastructure of Banking Company

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Abstract. Every company is required to have good management to achieve vision and mission by breaking down the step and approach into various segment and roadmap. The service infrastructure function is an important milestones in the company's business continuity because it is directly related to the customer, which must be carried out strictly and considerably with the existing business and IT needs. In general, enterprise architecture become the popular method that can be used to harmonize business strategies with information technology leading to the sustainability of company existence based on optimized satisfaction level, expected result of profit and proper degree of growth. The framework used in this study is TOGAF due to its flexibility so that it can be used with various other methods. In this case, through matrix satisfaction as an improvement of logical model to accelerate and advance the identification phases of information system, business and technology. The questionnaire was used by implementing ServQual dimension with a total sample of 100 respondents. IT Roadmap and blueprint will produce regarding the description of the target conditions proposed to optimize service infrastructure function and the design of EA blueprint will be used as a guideline in adjusting to the business needs.

Keywords: enterprise architecture, TOGAF, servqual, business blueprint.

1. Introduction

At present, the rapid development of Information Technology (IT) has a considerable influence on companies or agencies in carrying out business processes. Many companies have invested to make changes from the business process side to the information system so that the goals of the company can be achieved. Even companies have a dependency on high-quality information technology needs and services to keep up with organizational needs and market developments [1]. One of the banks that has developed information technology on infrastructure services is PT. XYZ. It has developed information technology to optimize its service infrastructure. To make an assessment of customer convenience towards the quality of the infrastructure of PT. XYZ, the researcher conducts an assessment by giving a survey to the customer because the customer of a bank generally wants to get the convenience of making transactions and getting services from the bank maximally so that the researcher wants to analyze the customer's assessment of the quality of their infrastructure. Customer value has an important role for companies in achieving Competitive Advantage [2]. The main factors that influence service quality are the expected service and perceived service. Problems that occur on the customer's side will affect their

level of satisfaction. So, if there are problems with the services of them, this has an effect on the development of quality infrastructure as a support for its services. Good planning can support the company's activities.

Enterprise architecture is one solution that can build harmony between business strategies and IT strategies by integrating business processes, information technology, organizational functions, and stakeholders in an organization. The framework used for this study is TOGAF with the TOGAF ADM method. TOGAF is a flexible framework that can be used with other methods and frameworks. This research is explorative research that uses a mixed method (combining quantitative and qualitative research). There is a matrix satisfaction that serves as a bridge between quantitative and qualitative research. This matrix also functions as a substitute for the phases of the passed TOGAF ADM. In this case, the application of TOGAF by combining matrix satisfaction will facilitate the process of identifying business processes so that it will make it easier for the Researcher to produce a Blueprint and IT Roadmap regarding the current condition of enterprise architecture and the proposed target to optimize service infrastructure functions so that business needs continue.

1.1. TOGAF

TOGAF is an architecture framework that provides the methods and tools for assisting in the acceptance, production, use, and maintenance of an Enterprise Architecture. It is based on an iterative process model supported by best practices and a re-usable set of existing architecture assets. The TOGAF ADM describes a method for developing and managing the lifecycle of an Enterprise Architecture, and forms the core of the TOGAF standard. Actually, there are four domains in TOGAF ADM, namely business, data, applications, and technology. The first phase of ADM is the preliminary phase and the phases end in architecture change management. ADM is a general method that can be customized with some specific needs so that it can be used with another framework [3]. The processes are divided into different sections and phases as shown in Figure 1.

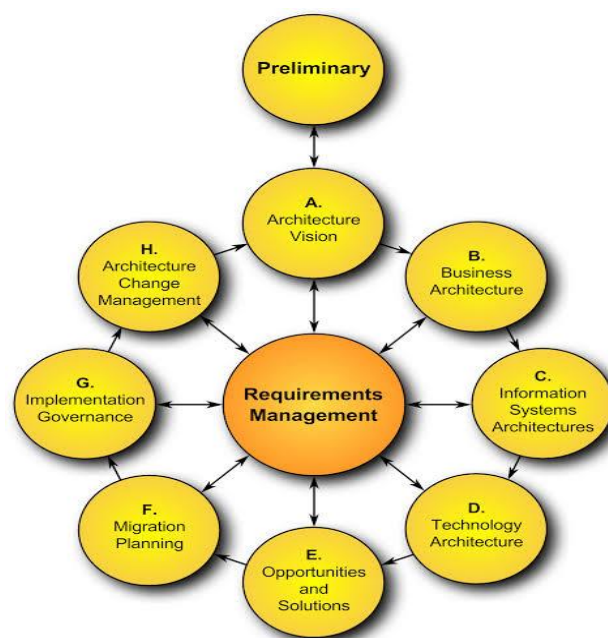


Figure 1. TOGAF ADM

1.2. ServQual

SERVQUAL is a method used to measure the gap between consumer perceptions and expectations. Consumers will have a positive perception if service providers meet or exceed what consumers expect. Servqual needs to be adopted to improve the quality of its services. This research will adjust the

dimensions to be suitable to be used in measuring the quality of bank services by adding one dimension, which is information quality [4]. In addition, the measurement of the quality towards the result of information systems performance must be relevant, complete, resourceful and easy to understand with five current dimensions:

1. Tangibles: includes physical facilities, equipment, employees, and means of communication.
2. Reliability: i.e. the ability to provide the promised service immediately, accurately, and satisfactorily.
3. Responsiveness: that is the desire of staff to help customers and provide responsive service.
4. Assurance: includes knowledge, ability, politeness and the trustworthy nature of the staff, free from danger, risk, or doubt.
5. Empathy: includes ease of relationship, good communication, personal attention, and understanding the needs of customers.

Information Quality: measures the quality of output from information systems while the quality of the information produced must be relevant, complete and easy to understand [5].

2. Methods

The phases of this study contain several phases, which is firstly, problem identification through SWOT analysis, then literature studies and observations are carried out. After that, data collection is needed for surveys by distributing 100 questionnaires, which are students. The validity and reliability test has been conducted after that as well the normality test. The objective of this study is related to the establishment of the satisfaction matrix, which is equivalent to business, information system and technology architecture phases in TOGAF ADM from the preliminary to a migration phase. The substitution has been done with a satisfaction matrix to accommodate the expectation of the user perception.

3. Result and Discussion

The first phase in the TOGAF framework of corporate architecture by designing the preparation to start a project within the company architecture. The purpose of this phase is not determined to determine and describe architectural capabilities according to company requirements. This phase contains artefact of principle catalogue that are published principles that are carried out in each phase of architectural design.

Table 1. Problem Identification

Architecture	Principle	Description
Business Architecture	Transparency, Accountability, Responsibility, Independency, and Fairness(TARIF)	Implementing governance principles that are agreed by the company’s directors, board of commissioners and the staff of Bank XYZ.
	Good Corporate Governance(GCG)	Ensure that this company implements a good corporate governance to show that Bank XYZ is a part of a good corporate citizen that cares about the environment and social responsibilities.
	Information transparency	PT Bank XYZ should always follow the principles of transparency to the stakeholders, depositors, and market participants.
	Careful of risks	A good risk management includes the participation of board of commissioners of risk policy, board of directors of risk policy, and a group of risk management of each business function.
	Harmonious industrial relationship	Creates a good working environment for its staff to improve the performance of their staffs. Conduct programs to improve the engagement level of the staff to the bank.
	Compliance with regulations	Bank XYZ guaranteed that their company will always follow the regulations and law.
	Welcome complaint	This principle shows that Bank XYZ care about their customers and also facilitate them to deliver their problems to the bank
	Continued financing	This principle is used to provide source of funds.
Data Architecture	Procurement	In the procurement process, Bank XYZ always do the procurement of products and services through internal audit and external audit.
	Increase communication quality with the shareholders	Bank XYZ always develop a good communication with their investors.
	Transparency of information and data	Technology is used as a media for information and data transparency.
	Data Security	Data in the company can be protected from users and prohibited uses
	Integrated application	The application that is used in bank XYZ, is integrated to each other if needed.

Table 1. Problem Identification

Architecture	Principle	Description
Application Architecture	Application upgrade	The application always do the update to adjust to the technological development/trends
Technology Application	The maintenance and development of IT infrastructure	Bank XYZ is using three principles, tested, standardized, and updated to do the update of IT infrastructure.
	Annual IT planning	Every year Bank XYZ do the planning for IT research and review.
	Information Technology Development	The development of IT is based on a company corporate plan.
	Monitoring, maintenance, and optimization	Bank XYZ used a command centre to monitor every operating infrastructure throughout the company.
	Implementation of IT policy	This is done to reduce non-performing loan (NPL).

The next phases discussed in this paper, is related to the opportunities and solutions is a phase that serves as an evaluation of the enterprise architecture design model that has been created. In this phase the results from each phase that has been made is the basis of the preparation of an implementation plan that aims to achieve the architectural design that will be built.

Table 2. Opportunities and Solution

Factor	Information	Description	Deduction
Risk	Data leak	Data leaks can be caused by weak system security and can be caused by misuse of privileges by parties involved in accessing the customer's account.	Added maximum security systems such as installing firewalls and anti-virus.
	Natural disasters	Natural disasters that can occur and are difficult to predict that can lead to damage to infrastructure and system stability that exist at Bank Mandiri	Make backup servers more than one place so that if there is damage to the main server, the customer data is stored safely.
	Human error	Human errors that usually occur are technical errors such as errors in inputting, sorting, and processing data.	Provide training for all employees to continue to improve skills, be more trained, and reduce errors that may occur
	Infrastructure Damage	Infrastructure damage can be caused by poorly maintained infrastructure	Perform maintenance on the infrastructure system regularly.
Issue	Application integration	Because the infrastructure system is still not related so some applications have not been integrated	With the planning of adding an infrastructure system that integrates operational data to customer data
Dependencies	Dependency on Infrastructure services	Transaction activities carried out by Bank Mandiri customers depend on IT infrastructure to support their transaction activities. If the infrastructure has problems, the transaction activities of thousands of customers will be disrupted.	Perform maintenance regularly to minimize disruptions to service infrastructure
Assumptions	Understanding Finance Technology	Providing information for customers about the use of finance technology products	There are guidelines for use by customers
	Budgeting of funds for infrastructure development	Requires sufficient funds for maintenance, development, additional user access and implementation of service infrastructure	There is an adequate budget for maintenance, development and implementation of infrastructure
Impacts	Good IT infrastructure planning	By planning good infrastructure, implementation becomes accurate	Plan all aspects of IT infrastructure to build and develop IT infrastructure that can be used for the long term.

Matrix satisfaction is used as an additional requirement of Bank XYZ customer perception. The items of matrix satisfaction are made based on valid items that have been measured using validity test. While the columns contained in the satisfaction matrix represent the phases in the TOGAF ADM, namely business architecture phase, information system architecture phase and technology architecture phase. Current business practices require an integrated approach to business and information technology, such as when companies need to assess the impact of introducing new products into their investment portfolios. This may require identifying additional business operations, hiring additional employees, changing support applications, and strengthening the technical infrastructure to support additional load

on these applications [10]. In matrix satisfaction, the number of programs initiated by bank in specific event or location has been aligned concussively with business, information system and technology architecture in the form of assessment to check the properness of business strategy to increase loyalty of user in utilizing service from company.

Table 3. Matrix Satisfaction

No.	Item	<i>Business architecture</i>	<i>Information Sys. Architecture</i>	<i>Technology architecture</i>
1.	There are many ATM machine products that support transaction activities	1,4,7,8,9,13	1,5	2,3,4,7,8,9,10,12,13,14
2.	EDC machines are available to make transactions in supermarkets	1,4,9,11,13	6	5,7,8,9,14
3.	Queue system that supports customer activities	3,6,10,13	N	11,15,16
4.	Internet service is available in the lounge	3,6,10,13	N	6,9,10,14
5.	Customer Service handles it quickly when there is data loss	3,6 12,14	3,7,8	1,9,10,11,12,13,14
6.	XYZ Bank repairs ATM machines quickly when problems occur	2,5,7,13	2,5	2,3,4,7,8,9,10,12,13,14
7.	The ATM system responds quickly	2,5,7,13	2,5	2,3,4,7,8,9,10,12,13,14
8.	Customer Service is swift in blocking accounts when card is swallowed	3,6,12,14	4	1,9,10,11,12,13,14
9.	Customer Service is swift in handling customer problems when making transactions	3,6,12,14	4,7,9	1,9,10,11,12,13,14
10.	The service provided by tellers is quite fast & accurate	3,6,13	4	9,10,11,12,13,14
11.	The customer has never had a problem when using a EDC transaction machine	2,5,13	6	5,7,8,9,14
12.	Tellers do the exact calculation of money	3,6,17	4	9,10,11,12,13,14
13.	Accuracy of service for each transaction	3,6,17	4	9,10,11,12,13,14
14.	Easy transactions through ATM machines	2,5,7,13	1,5	2,3,4,7,8,9,10,14
15.	The process of creating a new account is very efficient	3,6	4	9,10,11,12,13,14
16.	Internet access is fast	3,6,15	N	6,9,10,14
17.	Customers feel safe in conducting transactions through tellers	3,6,12,14	8,9	9,10,11,12,13,14
18.	Customers feel safe in conducting transactions through ATMs	2,5,12,14	1,5,9	2,3,4,7,8,9,10,14
19.	Customers feel safe in conducting transactions through EDC machines	2,5,12,14	6,9	5,7,8,9,14
20.	I believe my data is not misused	12,14	7	9,10,12,13,14
21.	The customer has never experienced an ATM card that has been swallowed	2,5,7,13	1,5	2,3,4,7,8,9,10,14
22.	Provides 24-hour transaction services through ATM machines	2,5,7,13)	1,5	2,3,4,7,8,9,10,14
23.	The unavailability of transactions for 24 hours through the EDC machine	2,5,13	6	5,7,8,9,14
24.	XYZ Bank adjusts transaction services at ATMs according to the needs of the Customer	8,13,15	5	2,3,4,7,8,9,10,14
25.	The number of XYZ Bank ATMs makes it easy for transaction activities	1,4,7,8,9,13	5	2,3,4,7,8,9,10,14
26.	Customers are satisfied with the fast response of XYZ Bank services	13,15,16	5,6	2,3,4,5,7,8,9,10,11,12,13,14,15
27.	The customer is satisfied with the accuracy of the transaction services provided by XYZ Bank	13,15,16	5,6	2,3,4,5,7,8,9,10,11,12,13,14,15
28.	The customer is satisfied with the XYZ Bank transaction service product	2,5,13,16	3	2,3,4,5,7,8,9,10,11,12,13,14,15
29.	The customer is satisfied with the services provided according to customer requirements	9,15	5,6	2,3,4,5,7,8,9,10,11,12,13,14,15
30.	The customer is satisfied with the quality of transaction security provided by XYZ Bank	2,5,10,12,14	7,8,9	9,10,12,13,14

Enterprise Architecture (EA) is an effective way to develop current and future views of the entire enterprise, which EA blueprint is produced as a reference for PT XYZ illustrated in Figure 2. It does this primarily by integrating strategic planning, business planning, and technical processes in a way that integrates with other business and technical processes. Enterprise architecture design and creation requires seamless collaboration and synergy between technology and non-technology executives and professionals [11]. If the company have goals to be sustained and survived, the strategy includes the following options such as what products and services are offered, what markets offer services and how it can differentiate the value of company with the competitors to ensure competitive advantage. The

company's goals remain the same but the organization's strategy and structure will change. This makes it seem as if pursuing alignment between strategy and organization pursues an elusive goal. Therefore, careful planning, planning and re-planning is very important [12].

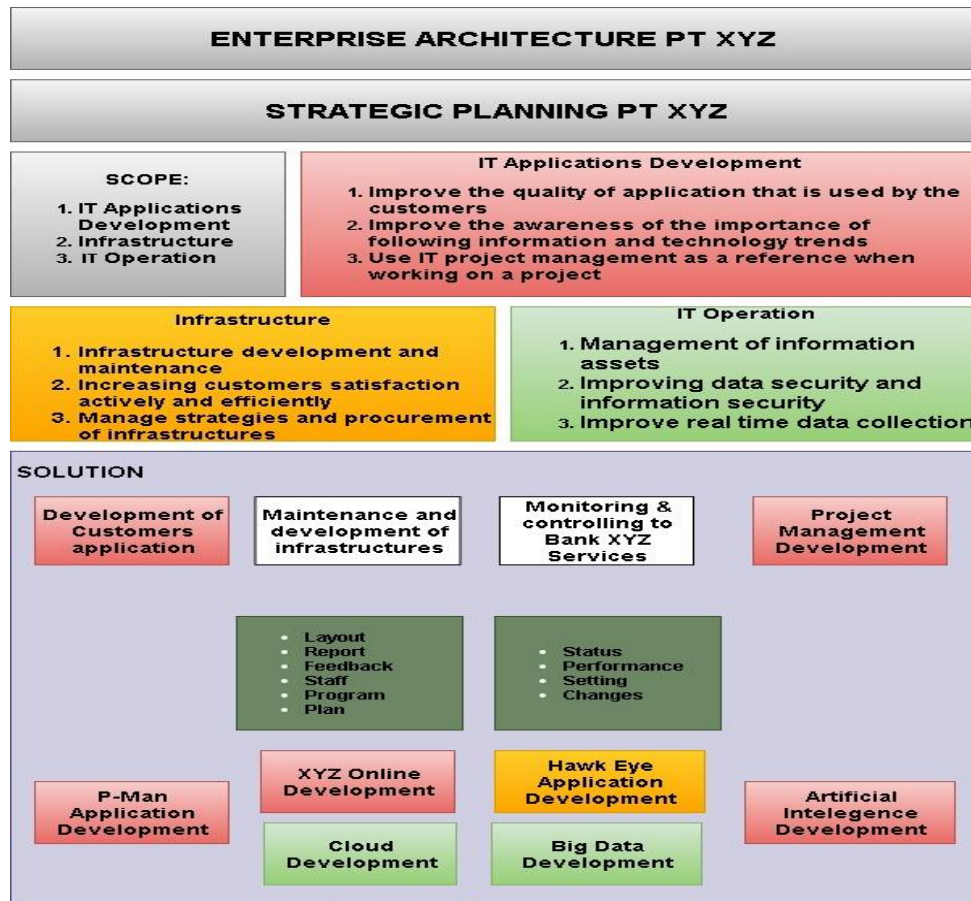


Figure 2. Enterprise Architecture Blueprint

4. Conclusion

The design of Enterprise Architecture in this research is produced by the EA blueprint. The design of EA blueprint will be used as a guideline in adjusting to the business needs of Bank XYZ. Enterprise Architecture The design in the Infrastructure Function of PT XYZ is carried out using the TOGAF ADM method. The design of this EA consists of the preliminary phase, architecture vision, opportunities and solutions and migration planning. Satisfaction matrix is equivalent to the business architecture phase, information system architecture phase and technology architecture phase. Some product services at xyz bank, sometimes have problems with customers, so there needs to be application development based on the results of the satisfaction matrix for controlling and monitoring product services and developing artificial intelligence applications to accommodate customer complaints instead of call centre services.

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