

ENTERPRISE ARCHITECTURE ON DIGITAL SERVICES INDUSTRY FOR ELECTRONIC CUSTOMER FEEDBACK USING TOGAF

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ABSTRACT. *The digital services industry is currently beginning to grow rapidly in the world due to the existence of Industry 4.0 which brings great benefits to businesses, especially in terms of technology growth. The problem that arises in the current state is that customer feedback data only reaches the service provider, while it is necessary to reach the partners and suppliers of the service provider. An example is an online ticket company, such as Traveloka.com or Tiket.com; customer data only reaches the online ticket company, not necessarily the suppliers and partners. This qualitative research was conducted by mapping the value chain of the digital services industry with TOGAF. The aim of this study is to gain an overview of the design of an enterprise architecture model for fulfilling customer feedback information electronically and automatically providing it to service companies, partners and suppliers. By leveraging the existing value chain in the digital services industry by taking on the responsibilities of the service provider and then doing the value chain mapping with TOGAF result in the design of a model in four phases which are the phases of the TOGAF, namely architecture vision, business architecture, information systems architecture and technology architecture. This is the design of an electronic customer feedback governance model provided by the company to meet the customer's information needs to reach partners and service providers. In this study, only the first four phases of TOGAF were reached because the first four phases were architecture in this study.*

Keywords: Enterprise architecture, Information technology, Governance model, Customer feedback, Services industry, TOGAF

1. **Introduction.** Currently, the world has entered Industry 4.0, where industrial development is focused not only on how people work to produce products, but people collaborate with technology to produce products useful for customers. That is why people work with machines and technology to use products/services that offer significant benefits to customers. In this case, innovation becomes one of the essential things to support the growth of Industry 4.0 in order to continue to improve service to customers to see the potential for the future with the existence of advanced technology [1]. With the advancing technology, the digital transformation from different industrial sectors has led to business models also changing significantly in this era of Industry 4.0 [2].

Service industries such as logistics companies have also implemented logistics 4.0 developed with the latest technological developments and specific tools to enable companies to evaluate to reach maturity level in the service industry, especially in logistics companies [3]. The service industry is now an industry that is currently becoming more sophisticated, as the growth in customer service is a factor in increasing the value for companies with services provided [4]. The service industry is certainly different from the manufacturing industry, where the service sector places more emphasis on intangible services, specific and unique services, and services that can be adapted to the needs of customers [5].

The need is to figure out how the customer needs service, and then there is a need for customer feedback to the company so that the company understands how to evaluate the terms and terms of service provided to customers and learn further in improving customer service in the future [6]. Knowing customer feedback can lead to customer satisfaction when using the services that we provide to customers. In 2019 on research conducted by online airline ticket sales services, it can be established that customer satisfaction with e-commerce travel agent ticket sales is more satisfied than airline e-ticketing ticket sales [7].

In addition to customer feedback customer satisfaction, customer feedback also receives service quality data in business services, for example, in the service on a company's website that has now grown, where each customer uses the company's website as a portal to access information and even conduct transactions on the website to find out how the service quality or e-service quality that the company has provided customers with better customer service. For example, research conducted in 2019 for mobile payment services with NFC technology can show how customer evaluations receive services in the NFC technology used [8].

By looking at the two examples above, data from customer feedback can see customer satisfaction and service quality, and of course, there will be many data that can be used as feedback for companies when evaluating, especially for companies entering Industry 4.0 [9]. The problem that arises is that the research of the customer feedback questionnaire by organizations or companies comes only from the marketing department and the research and development department to get results on how to provide customer feedback on services owned by the company or organization. After obtaining data from customers, the research department reports only to the board of directors or even only to managers above its level [10].

We can take several examples, for example service providers such as online ticketing, namely Traveloka.com, agoda.com, tiket.com, etc. Service providers not only serve themselves, of course, but there are also third parties that help operational service providers, such as hotel associations, air ticket associations and other third parties involved in assisting service providers. The feedback obtained from the questionnaire does not reach the third party, but only the marketing, or even only the research and development department without being noticed by third parties such as partners or suppliers. This is very unfortunate. The purpose of customer feedback is to improve the services of third parties and service providers.

Customer feedback data is essential and should be obtained quickly from the customer, so time is still relevant to improve customer service from customer feedback [11]. The primary motivation in obtaining data from customer feedback is to be able to process in determining the key and basic needs that the company's customers need to produce more suitable service designs. Based on this data, it can make improvements in the products and services needed, as well as tailoring services to be more detailed with specific customers [12]. Functional data from customers must be done to be useful data that can be processed by the company, and that should be taken into account for companies that

are entering Industry 4.0 as input for improvement that delivers value by getting an accurate data analysis when receiving data from customers. Enterprise architecture is a method of building good governance within a company by relying on people, processes and technology within the company so that key business process and information technology capabilities can meet the needs of companies with the right technology use [13].

TOGAF from The Open Group [14] has provided an excellent framework for enterprise architecture. In short, TOGAF is responsible for the management of the company on a very large scale. However, in this study, researchers used TOGAF because TOGAF has an architecture related with management in every aspect in company or industry. TOGAF can improve business processes, especially in electronic customer feedback from the company, so that the company has good governance in receiving customer feedback and providing feedback to the right people in managing the feedback, so that feedback provides positive values for companies in developing the digital services sector. The TOGAF is a framework that not only runs on the technology element, but also the people and process elements are discussed and become an integral part of governance in architecture. Therefore, TOGAF is well suited in this study when providing suggestions to companies that will cover customer feedback to be more structured and detailed in the discussion of enterprise architecture. TOGAF has standard providing improved guidance, improves the document structure, and has great usability, content framework to drive greater consistency in the outputs that are created when following the architecture development method (ADM) of TOGAF. The TOGAF content framework provides a detailed model of architectural work products.

The research question in this study is how to develop enterprise architecture on digital services industry for electronic customer feedback using TOGAF. This study aims to obtain the appropriate enterprise architecture governance for customer feedback through several steps, first looking at customer feedback data generally performed by the digital services industry and then identifying customer feedback data issues using the TOGAF enterprise architecture framework.

TOGAF has 8 phases in its framework, after preliminary, phase A starts with architecture vision until phase H architecture change management. However, in order to deliver research results in the form of an enterprise architecture design at an early stage in this study, only 4 phases were generated: architecture vision, business architecture, information systems architecture and technology architecture.

2. Literature Review.

2.1. Digital services industry. Unlike the product industry, the service industry uses a lot of the intelligence or expertise of a person or group of people in conducting a business process to achieve goals in an organization or company. With the development of highly advanced technology in Industry 4.0, the services sector is transforming digital services in the digital services sector to accelerate service provision to corporate customers further and create more value-creating customer interaction [15].

Research conducted in 2017 [16], in doing business in digital business in the development of the digital services sector, requires critical success factors to ensure that operational services run smoothly. There are two dimensions, sales, and customer experience, and the other is organization. One of the exciting things in every dimension is the dimension of sales and customer experience. One of the critical success factors is excellent customer experience and satisfaction. Furthermore, in terms of organization, critical success factors are multi-level and multi-speed organizations for a faster response. It has become a necessity to pay attention to how excellent customer experience and satisfaction is in

terms of sales and customer experience and how organizations can respond quickly to customer experience and satisfaction by providing faster responses so that customers feel positive responses from organizations and companies [16].

The digital services sector has a value chain framework illustrated in Figure 1.

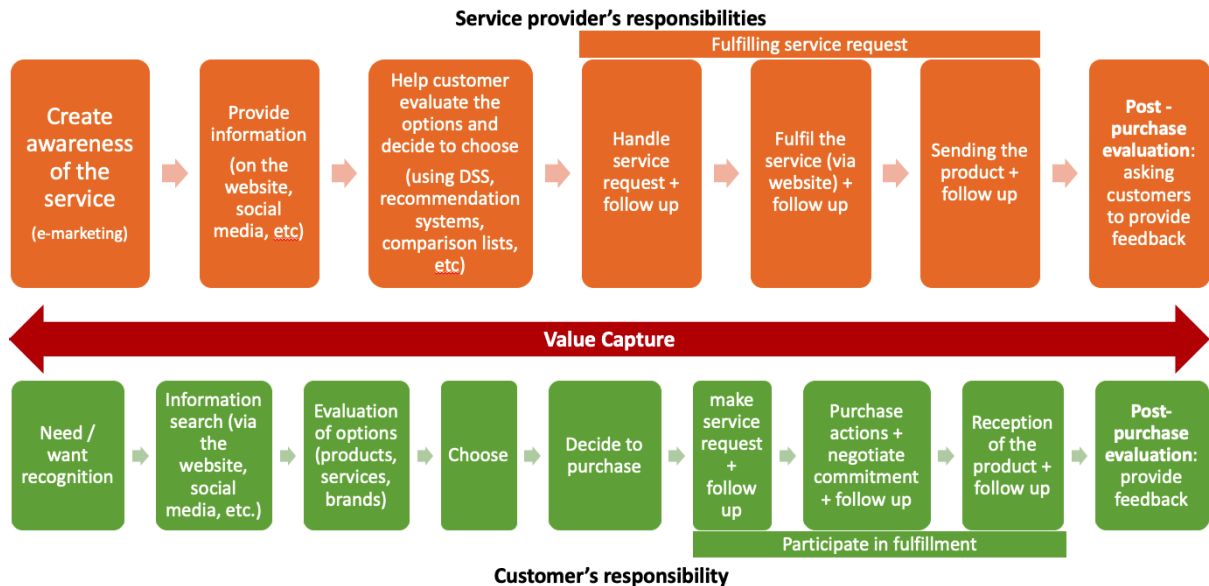


FIGURE 1. Digital service value chain framework [17] adapted from [18]

Figure 1 shows that the value chain can be obtained with the two responsibilities: the service provider's responsibilities and the customer's responsibility. The responsibilities of the service provider start from creating awareness of services (e-marketing). In this first phase, the service provider tries to create an attraction for customers to be able to see the services offered to customers. The next step is to provide information, be it on websites, social media and others. After that, it is better if the service provider can help the customer evaluate each choice and help the customer decide what service the customer wants, in this case, a decision support system, recommendation system, comparison list, etc. After being able to help determine, you will enter the phase of fulfilling service requests to the customer, which is to handle and follow up service requests, then run the service through the website and follow the service on, send the product and there is also a follow-up. After the product or service reaches the customer, the service provider may ask the customer for feedback that can be provided to the service provider.

The other side of service providers is the responsibility of the customer. Customers start their journey from need/want recognition to customers, and then look up information via websites, social media, etc. After receiving the information, the customer evaluates all available information along with the choice of services offered on that information. The customer then chooses the desired product or service and then decides. After this, the next stage is that the customer enters the stage to participate in the execution, which is to submit service requests and follow up on the services to be provided, then buy actions and negotiate commitment and follow-up, as well as receiving the product or services and follow-up. After that, the customer evaluates the received product or service by providing feedback [17].

2.2. Customer feedback. Customer feedback is information that can be obtained logically from the customer side of what the customer feels. Data in the form of comments or posts from social media or the results of a questionnaire conducted by the company to get

customer feedback is primary data as representative data to see how the customer feels a reasonable interest or what the customer even feels or problems arising from a product or service received by the customer. Customer feedback is support for companies to make improvements in products or services to customers so that it will be better for customer needs in the future. Anytime a customer has a good feeling that is a sense of fun, or even if the customer can provide feedback to the company, that is a good thing, but if the customer cannot give direct feedback to the company, the customer communication on social media and this is also what we need to get feedback for us on customer social media [19].

Companies generally use customer feedback data using existing models, usually using a model that is Importance-Performance Analysis (IPA), which is widely used to perform analysis and interpret customer satisfaction in the product and service sector. Besides, there is also the KANO model, which is used to perform an in-depth analysis of customer satisfaction and also how customer preferences are classified [20]. Customer feedback can also use the service/e-service quality model in general to get the quality of a service performed by an on-farm support tool from customers using the tool to see how high the quality of the tool is being used for customers [21].

2.3. Enterprise architecture framework. Enterprise architecture is known to every company that has entered Industry 4.0. However, it is still not possible to implement it, because there is still no proper coordination between the IT infrastructure and activities for the integration of business processes into an operational model in the company. Enterprise architecture must be built with the awareness of everyone in the organization or company to improve communication between stakeholders from high to lower levels in a business system. Therefore, enterprise architecture is the existence of an integrated system to ensure that the requirements for resources and functions in the company or organization are met [22].

The enterprise architecture framework has a structured model from a business perspective, and the IT perspective is integrated into one to produce the latest enterprise architecture following current conditions. The results of the enterprise architecture framework produce documents such as models and diagrams and reports that can pose competitive challenges by implementing enterprise architecture [23].

The enterprise architecture framework used in this study is based on The Open Group, the TOGAF Framework version 9.2. TOGAF has an architecture related with management in every aspect in company or industry. TOGAF can improve business processes, especially in electronic customer feedback from the company, so that the company has good governance in receiving customer feedback and providing feedback to the right people in managing the feedback, so that feedback provides positive values for companies in developing the digital services sector. The TOGAF is a framework that not only runs on the technology element, but also the people and process elements are discussed and become an integral part of governance in architecture. Therefore, TOGAF is well suited in this study when providing suggestions to companies that will cover customer feedback to be more structured and detailed in the discussion of enterprise architecture. TOGAF has standard providing improved guidance, improves the document structure, and has great usability, content framework to drive greater consistency in the outputs that are created when following the Architecture Development Method (ADM) of TOGAF. The TOGAF content framework provides a detailed model of architectural work products.

The TOGAF [14] has 8 phases as shown in Figure 2 after preliminary.

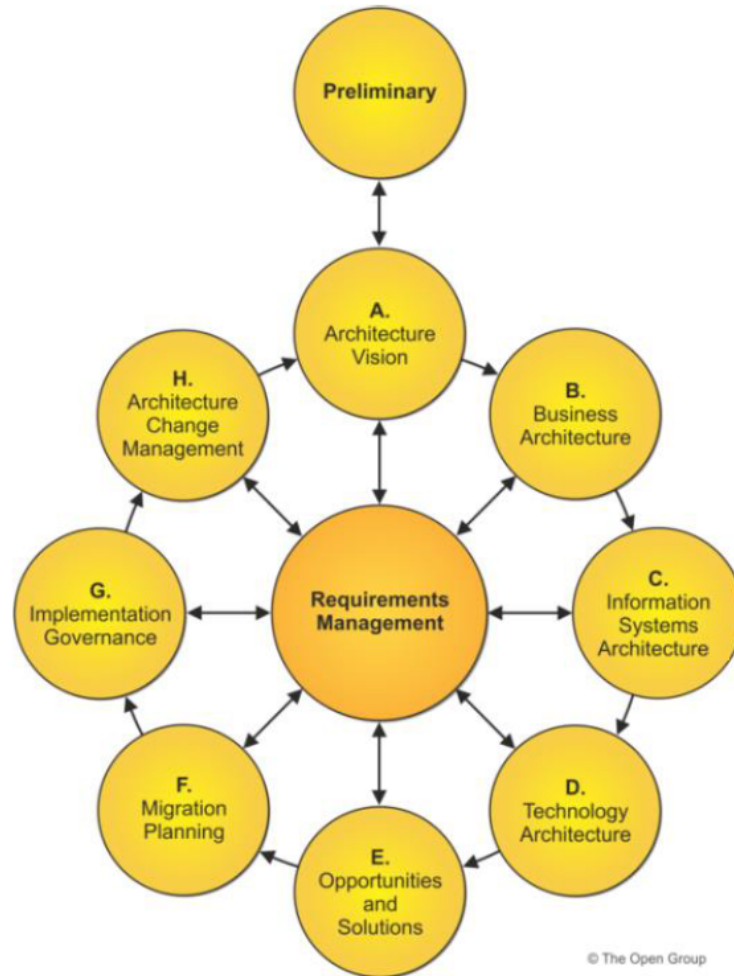


FIGURE 2. Architecture Development Method (ADM) cycle [14]

Phase 1: Architecture Vision

This phase is designed to build an ambitious, high-level vision in every skill and business value that can be created and developed as a result of the overall business architecture. In addition, this phase is a statement about architecture in defining the work program for building an enterprise architecture.

Phase 2: Business Architecture

In this phase, the goal is to describe how the enterprise needs to achieve goals in the business and as a driving force in the strategy of the architecture vision. Apart from that, it also serves as a roadmap that can fill in the gaps between the baseline and target business architecture.

Phase 3: Information Systems Architecture

In this phase, a target information systems architecture should be built by explaining how an enterprise information systems architecture can participate in a business architecture that is in phase 2 and an architecture vision that is in phase 1, and is capable of building an architecture roadmap to meet the company's information systems architecture needs.

Phase 4: Technology Architecture

At this phase, a technology architecture should be built capable of the needs of the architecture vision, business goals, data and applications aligned with the information systems architecture to create technology services in line with stakeholder concerns.

Phase 5: Opportunities and Solutions

This phase is to generate the full version of the architecture roadmap according to the requirements of the analysis of each component in the enterprise architecture, information systems architecture and technology architecture phase. In addition, it also defines the requirements needed to support the architecture roadmap, identifying a transition architecture to meet the needs of continuous business value.

Phase 6: Migration Planning

This phase is to finalize the architecture roadmap required when migrating to architectures that do not yet exist or already exist, and this phase also requires information on the implementation support and migration plan. Ensure that the implementation and migration plan is coordinated with the enterprise’s approach to managing and implementing change in the enterprise’s overall change portfolio.

Phase 7: Implementation Governance

At this phase, it must be ensured that the target architecture built can be applied to this entire project and can accurately reflect the function of architecture management as a solution to existing problems and provide answers to previous problems.

Phase 8: Architecture Change Management

At this phase, it is to ensure that the architecture lifecycle is maintained, the architecture governance framework is consistent with the architecture design, and the business architecture is consistent with the previously created architecture vision.

3. Research Method. The study was conducted using qualitative methods to discuss the literature studies obtained in conducting this study. This study uses the TOGAF approach [14] from Figure 2. From TOGAF, researchers mapped the value chain in the digital services sector [17] in Figure 1.

To get the results of this research question, the research has a few steps as a method to find answers to the research question. The steps of the research are shown in Figure 3.

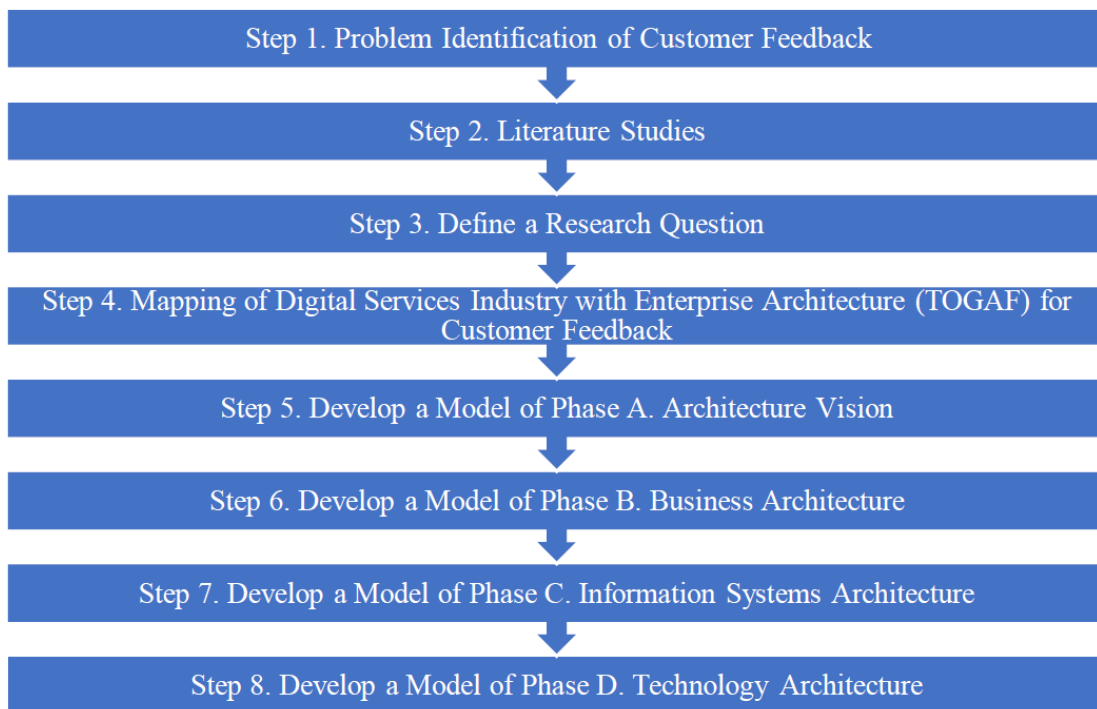


FIGURE 3. Research method

The first step in this study was to determine the problem identification of customer feedback. As explained in Section 1 Introduction, the problem that arises is that the customer feedback questionnaire only comes from the marketing and research and development departments to see how customer feedback on products and services owned by the company or organization. After obtaining data from customers, the department conducting research reports only to the board of directors or even only to managers above their level. This poses the problem that customer feedback data does not become the basis for product or service improvement required for governance.

The second step is to conduct literature studies from the existing problems and then need a theoretical basis to be able to have discussions in this research. Literature studies are conducted to cover the digital services sector, customer feedback, and the framework of enterprise architecture using the TOGAF framework.

The third step is to determine the research question in the research: how to develop enterprise architecture governance for customer feedback on the digital services sector? To answer this research question, the fourth step is to be mapping the digital services sector with enterprise architecture for customer feedback. There is the need to do a mapping to know how the business owner's needs are expected from every stage of the TOGAF to the value chain in the digital services' industry. Therefore, every stage of TOGAF has the emphasis that should be placed on every value chain in the digital services sector. Then continue in step 5 to step 8 for a general overview of the TOGAF of each phase from phase A to phase D. The design of an architecture model using TOGAF is the output of this study to become a necessary design model for companies that will focus on business processes based on customer feedback in digital services companies.

4. Result and Discussion.

4.1. Mapping of digital services industry with enterprise architecture for customer feedback. At this stage, the digital services industry uses the value chain framework discussed in literature studies, but only one side is chosen, namely the responsibilities of the service provider, as illustrated in Figure 4.

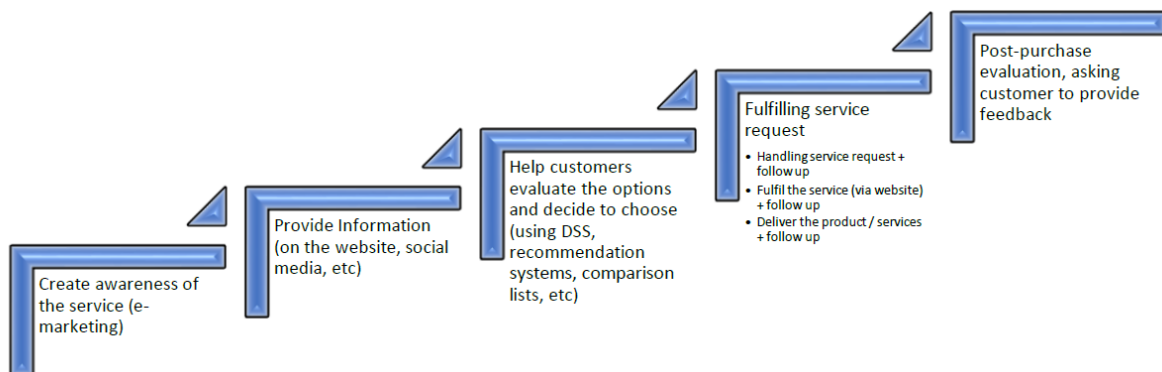


FIGURE 4. Service provider's responsibilities of value chain from digital services industry

In the following value chain that provides information (on the website, social media, etc.), this also ties in with the information influence that has a significant influence on commenting in the previous study. Then the next value chain is to help customers evaluate and choose the options (using DSS, recommendation systems, comparison lists, etc.). This is also consistent with the ease of the significant influence of customers in providing comments in the previous survey.

The three value chains at the beginning of the service provider’s responsibilities show that customer behavior will provide feedback from the first, namely awareness through the media or social influence around the customer’s environment. This is of significant influence to provide feedback later. Then in the fourth value chain, which is to fulfill customer service requests until the customer receives the product/service, it gives the customer motivation to provide feedback. Furthermore, the fifth value chain is the post-purchase evaluation, where the customer is willing to provide feedback as valuable input to the organization or company to meet customer needs.

The discussed value chain is then mapped to the enterprise architecture governance in the TOGAF framework in order to create new enterprise architecture governance. The following is the mapping made in Table 1.

TABLE 1. Mapping of TOGAF framework with digital services industry value chain

		Digital Services Industry Value Chain				
		Create awareness	Provide information	Help customer evaluate	Fulfilling service request	Post-purchase evaluation
TOGAF Framework	Phase A. Architecture Vision		V	V		
	Phase B. Business Architecture	V	V	V		
	Phase C. Information Systems Architecture	V	V	V	V	V
	Phase D. Technology Architecture			V	V	V

Mapping is done in Table 1 which shows that the value chain can be included in the TOGAF framework. Below is an explanation of the results of the mapping. Phase A is the vision architecture of the TOGAF framework, where phase A is essential in order to strategically determine organizational goals and determine the scope that fits the needs of this framework. The mapping in the value chain is, therefore, the primary need to provide information and help customers evaluate. Both are very important in shaping an architectural vision. So customers better understand the goals of the service provider’s service and how the service provider leads the business process.

Phase B is business architecture. At this phase, the primary needs that should be a priority are creating awareness of the services, providing information, and helping customers evaluate options and choose. Since the industry’s primary focus is the digital service’s industry, the maturity of this business architecture is necessary to make customers aware, provide much information to customers to adapt to the services in the organization and also provide everything that needs customers when evaluating services, so it is easy to determine which services to use. The tools in phase B can use business process modeling to describe the overall business process in the company.

Phase C is the architecture of information systems. At this phase, the entire value chain is indispensable to get the full customer feedback process. Starting with creating awareness, providing information, helping customers evaluate options and deciding to choose, fulfill service requests, and review post-purchase evaluations. This is because at this stage, all data flow from the data architecture and application architecture will be

here so that all data and information will be useful in this phase C. Techniques that can be used in this stage use ER diagrams, class diagrams, and object diagrams.

Phase D is technology architecture. At this phase, what is needed from the value chain is to help customers evaluate and choose the options. In this case, technology plays an essential role in terms of services so that customers can be helped in determining services from service providers. Another value chain is meeting service requests. The focus on industry is the digital services sector, which is why it is essential in technology architecture that digital services are needed to meet customer needs. Moreover, the final value chain is an evaluation after purchase. Because the output of governance is the production of feedback from e-customers, technology is the most important in generating electronic feedback from customers. In this phase of technology architecture, alternatives in the selection of technology will be essential, and the selection of software and hardware will also be outstanding in this phase.

4.2. Development of a new enterprise architecture governance for customer feedback in digital services industry. By studying previous research on higher education institutions [24], the TOGAF is a framework capable of providing a detailed architecture for each process that is carried out and developed to produce governance that will improve in the organizational development process, for example, by showing a variety of variables ranging from architectural vision, business architecture, information systems architecture, data architecture and technology architecture, and this research was conducted by mapping the higher education value chain. Therefore, this study also performed a mapping between the digital services value chain and the TOGAF architecture framework.

In the element of vision architecture, it is imperative to provide information and help customers evaluate to choose to enrich the enterprise architecture of the board for information about vision, mission, and goals in the company. In the elements of business architecture, the value chain requires creating awareness, providing information, and helping customers evaluate when choosing. Governance will thus have a deep understanding at this stage of how to deal broadly with the individual as part of the team in a service business.

In the elements of information systems architecture, the entire value chain is needed in the interest of data and applications. It is intended that the flow of data and information cannot be interrupted at this stage and that the information provided to customers becomes denser and more useful to encourage customers to evaluate feedback to the company.

In the elements of technology architecture, the value chain is needed to help customers evaluate their choice, fulfill service requests, and post-purchase evaluations. This is consistent with the elements of the technology architecture, namely technology services, logical technology components, and physical technology components. With Industry 4.0, the technology needs to adapt to the technology that is evolving, and in line with the popularity of the usage used by customers to make it easier for customers to evaluate the process of helping customers when choosing, it is fulfilling service requests and posting purchase reviews. Besides, the company is a digital services industry, so it is imperative to use the latest technology when using it.

From Table 1, which is a matrix image of TOGAF framework with digital service industry value chain, there are 4 phases determined to be assigned to the value chain. Furthermore, Figure 2 shows the TOGAF content metamodel, and then the design architecture is made of each phase in the TOGAF framework.

TABLE 2. Problem description

Analysis	Description
Problem Background	The company does not receive full customer feedback based on complaints and customer needs because customers do not pay attention to the company when using products/services used to provide immediate feedback.
Change Drivers and Opportunities	Changes that can be made by companies are to provide feedback features through digital marketing that is company-owned when promoting products or services that are delivered to customers. This makes it easy for customers to find out the fastest way to file complaints or adjust customer needs when using products or services. The company receives meaningful and appropriate feedback from customers who use and can create new products or services to provide better services to customers.

a) Phase A. Architecture Vision

In this phase provides high-level aspiration of capabilities and business value that the architecture will deliver. According to Table 1, the matrix mapping with value chain is to provide information and help customers evaluate. To achieve this, the first step is to determine the problem background, also to change drivers and opportunities.

Besides, the next step in the architecture vision is to create a solution concept as shown in Figure 5.

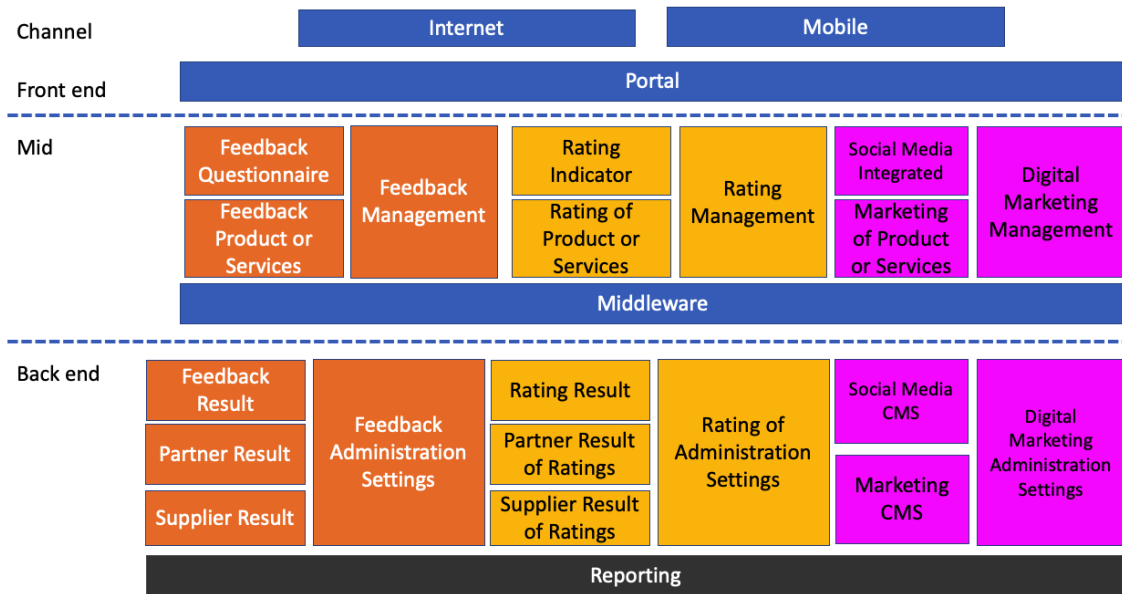


FIGURE 5. Solution concept of architecture vision

By looking at Figure 5, the solution concept in this phase is divided into three parts, namely front, middle, and back. The channels used in the feedback application are the Internet and mobile. At the front, there is a portal that can be accessed via a web browser or mobile. In the middle, it is divided into 3 parts that are distinguished by color.

Orange color is about feedback management where there are two small parts, namely feedback questionnaires such as forms displayed on the portal and product or service feedback, feedback to suppliers or partners that are in a product or service.

The second color is yellow if it concerns assessment management. Rating management is aimed at supporting the feedback given. Reviews are given in the form of stars and

are the result of overall user feedback. Generally, rate using a Likert scale to provide a rating of what users are feeling. Therefore, in rating management, there is a rating indicator that should determine the indicators in each given rating. Then there is also an assessment of products or services. Thus, the user can choose the rating based on the product or service used.

While the color pink is related to digital marketing management, in this case, the application is integrated with other applications such as CRM or social media owned by the company. With the integration, users can see different types of digital content related to the company's digital marketing. As for digital marketing management, there are integrated social media and marketing of products or services. It is integrated with other applications that are connected to the feedback application.

The last part that is also important in the feedback application is the backend. In the backend, the same at the middle level, then three main parts are the same, namely feedback management settings, assessment administration settings, and digital marketing administration settings. In the feedback, the accounting institutions and the rating accounting institutions are related to an administrator designated by the company who can adequately manage the institutions to match the company's vision and mission. In comparison, digital marketing administration settings are remote settings in applications integrated with this feedback application.

At this stage, stakeholders involved in the business architecture for electronic feedback from customers, customers, suppliers, partners, directors/managers of the feedback application, and managers should be. Of these 5 users as stakeholders, each task analysis performed by each stakeholder is shown in Table 3.

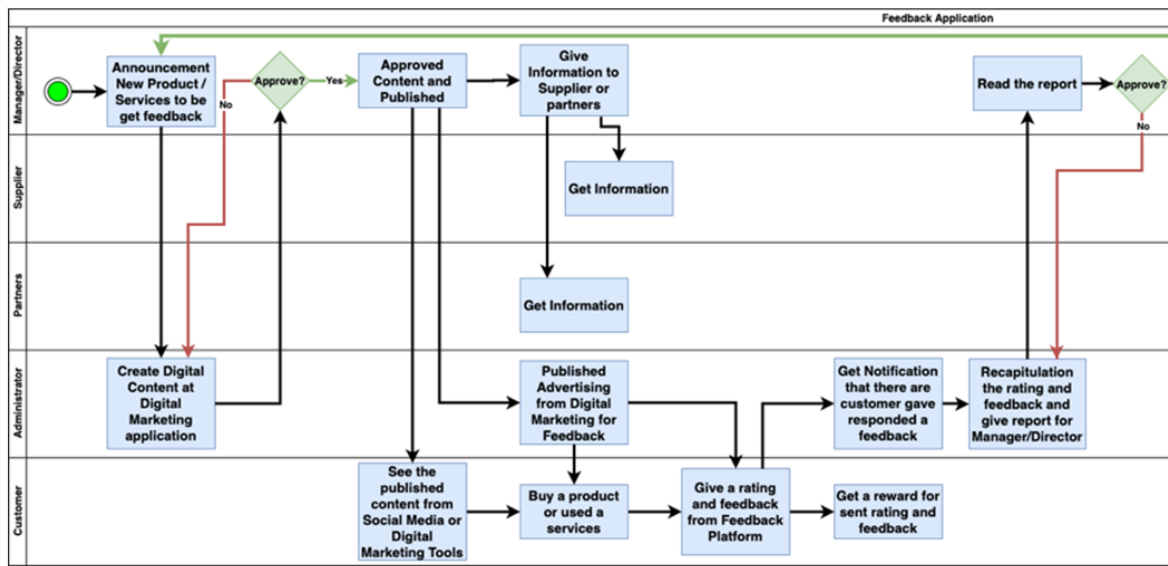
TABLE 3. Stakeholder involvement

Stakeholder	Involvement	Concerns
Customer	Provide feedback to the company by providing answers to closed questions or open questions provided from the feedback platform.	The form used may be consistent with the correct product or service the customer has used.
Supplier	Get feedback and become informed so that suppliers can improve customer feedback.	Feedback report results can represent all customers to improve supplier products or services.
Partners	Get feedback and become informed so that partners can improve customer feedback.	Feedback report results can represent all customers to find good and bad customer comments.
Director/ Manager	Determine the direction of the desired feedback to get feedback according to the needs of product or service improvement.	Feedback questions and questionnaires are updated continuously and can be developed according to the needs of the product or service to provide further improvement.
Administrator	Ensuring that the form can be correctly completed according to the categories in the product or services so that the form can be automatically given to the correct user to meet the needs for product or service improvement.	Maintain it appropriately to ensure the form matches the user's profile in order to complete product or service feedback.

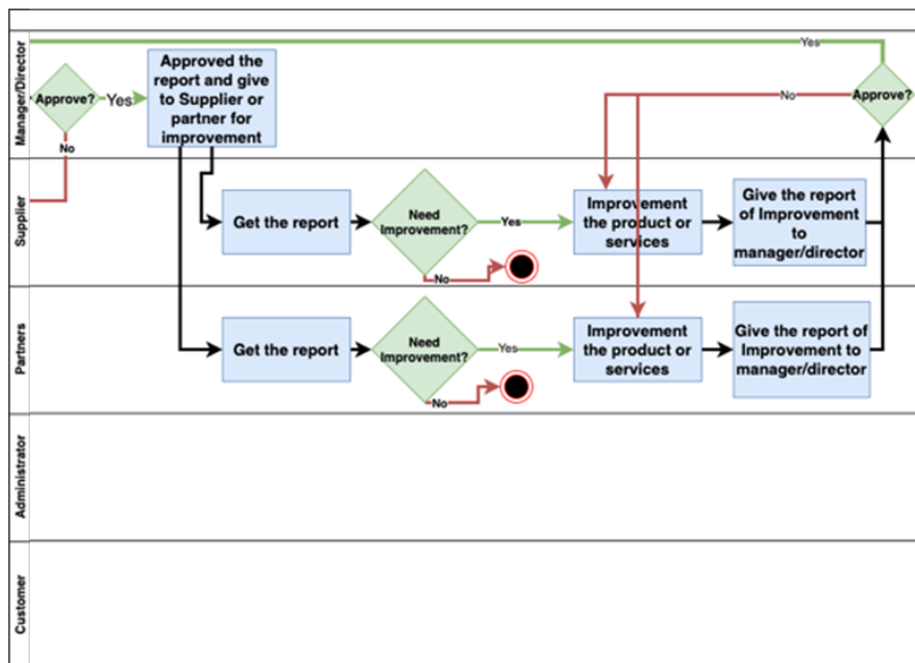
b) Phase B. Business Architecture

After phase A has been completed and has reached the objectives of phase A, phase B. Business Architecture will follow. In this phase, the goal is to get an overview of business processes so that applications and stakeholders can run business processes according to the architecture that is done in this phase.

Based on Figure 6, we see that it is ultimately a feedback cycle in which the manager/director initially announces a new product or service as a form of customer awareness. The administrator then creates digital content for the product or services. Once completed, manager/director approval is performed.



(a)



(b)

FIGURE 6. Business process model of feedback

After approval, the content is published and can be viewed by the customer. On the other hand, after the manager/director has approved it, the system will also provide information to suppliers or partners that the product or service will be ready to receive feedback. The administrator regularly publishes to create customer awareness.

Customers receive information from digital marketing or social media owned by customers, and customers purchase products or use services. The customer then provides an assessment and feedback from the feedback platform. Then the customer receives a reward from the results of assessment and feedback. On the other hand, the administrator will be notified that a customer has provided feedback, and the administrator will report that it is presented to the manager/director.

From reports drawn up by the manager, the manager/director approves whether this is following real conditions. After approval, the system provides a report to suppliers or partners to receive the report and make the feedback as an improvement for the next. The supplier or partner will determine whether improvements are possible based on the results of the feedback. When improvements are possible, improvements are made, and suppliers or partners create new products or services. If approved, go back to the process from the beginning, which is publishing on digital marketing.

This is going to be a feedback life-cycle so that there are good business and customer engagement to maintain customer loyalty. This way, the customer always gets the attention of the company and vice versa, the company continues to pay attention to the input of customers who give feedback. This is the achieved business goal.

c) Phase C. Information Systems Architecture

As an explanation in Figure 7, customers have access to the feedback front-end application via two platforms, the mobile platform, and the browser platform. The advantage of using a mobile platform is that customers can scan QR code or bar codes on products or services, so they can quickly determine which products or services customers will provide feedback on. Besides, customers can gain information by accessing digital marketing applications through two platforms, the mobile platform, and the browser platform.

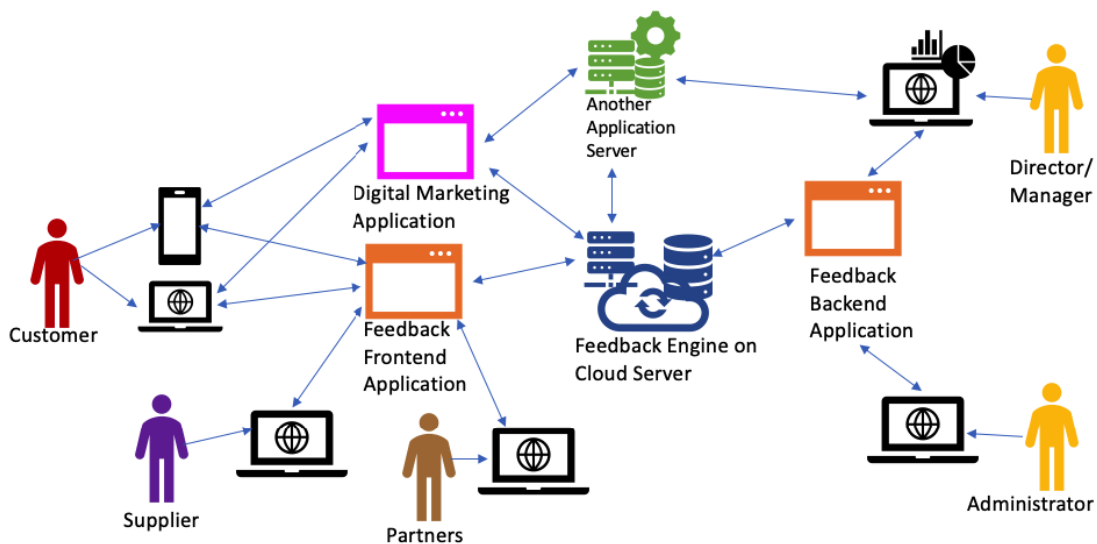


FIGURE 7. Information systems architecture

As explained in phase A. Architectural Vision and phase B. Business Architecture, suppliers and partners are also included as stakeholders. The intention is that the feedback that the customer receives can be given to suppliers or partners to provide input for the improvement of the next product or service. For example, suppliers and partners

participate in the architecture of information systems that are connected to the feedback front-end application.

The front-end feedback application has a feedback engine on the connection to the cloud server. The server also has a connection to a digital marketing application that is still on the same server. The server can also be connected to another application server or third-party application. The feedback engine on the cloud server provides administrators and managers/directors with access to feedback back-end applications.

Phase C. Information Systems Architecture has two broad groups, namely data and application. These two major groups can be explained by the existence of a business process flow that was discussed in phase B. Business Architecture. That data flow will continue to flow as the life cycle in this feedback. Although in the feedback process, the application has 3 applications, namely the feedback front-end application, feedback back-end application, and digital marketing application. However, several other applications are connected to the cloud server feedback server for third party applications that are connected via the API.

d) Phase D. Technology Architecture

At this stage, it discusses the technology architecture that supports feedback processes. In general, technology architecture is divided into 3 layers, namely the physical layer, the application layer, and the channel used by the user. Here is a picture of technology architecture in the feedback processes.

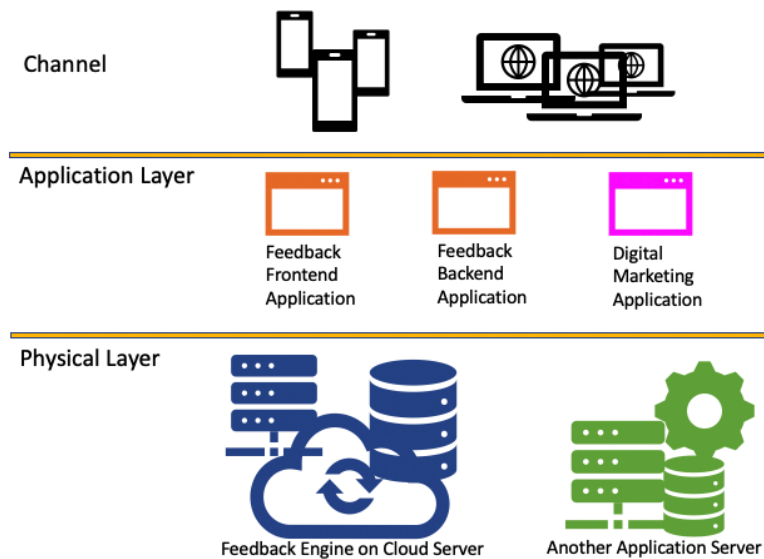


FIGURE 8. Technology architecture

In Figure 8, it can be explained that the primary physical layer is the cloud server, where there is a feedback engine that will accommodate the application layer. As good as possible if other applications are inside the server or outside of the feedback server as it can be connected through the application programming interface (API).

Then the main application layer is the feedback front-end application and feedback back-end application. Both applications are the main applications. We are supported with digital marketing applications aimed at creating impact awareness among customers through the application connected to the social media platform.

On the last layer is the channel. Channel is a media technology used to access the application layer. Channels can use mobile smartphones that are now widely used by

users and also PCs such as notebooks or laptops that can be taken anywhere. This is because servers in the cloud are accessible anywhere and anytime through this channel.

With these 4 phases, the TOGAF framework can guide the feedback process, especially in digital environments such as the digital services sector, which is gaining popularity in this world. In these 4 phases, governance in managing digital data flow processes is better organized because it is associated with suppliers and partners of companies that are part of the company's product or services.

5. Conclusion. By using the TOGAF framework by mapping the value chain in the digital service industry, it is gaining the edge in the implementation of IT governance in the digital service industry. Creating awareness can enter the TOGAF framework in phase B. Business Architecture and phase C. Architecture of Information Systems. Provide information that can be entered the TOGAF framework in phase A. Architectural Vision, Phase B. Business Architecture, and Phase C. Architecture of Information Systems. Help evaluate customers to choose to enter the TOGAF framework at all stages (phases A, B, C, D). Fulfilling service requests can enter the TOGAF framework in phase C. Architecture of Information Systems and phase D. Technology Architecture. Likewise, post-purchase evaluation can also be included in the TOGAF framework in phases C and D.

This demonstrates the establishment of good enterprise architecture governance to support success in providing useful feedback to the company so that companies can receive feedback as an improvement to service continuity, with readily available feedback, the occurrence of a faster service improvement business process cycle in the digital service industry.

Thus, the design architecture model created may be for foundation to provide in this study for companies making efforts to realize customer feedback. This is an advantage because the model architecture was created in this study. By using this model architecture, companies that will build a business from customer feedback can integrate with customers, companies and third parties such as partners and suppliers in the provision of services by receiving customer feedback that can be received directly by the third party and can be used directly as evaluation material and services, for third parties in providing customer service improvements through service providers.

The future research that can be looking for stakeholders is interested in building an enterprise to implement this enterprise architecture model so that the company has and implements a design model so that the phase E. Opportunities and Solutions, phase F. Migration Planning, phase G. Implementation Governance and phase H. Architecture Change Management can be applied in the company and can be done further, namely an evaluation of the design model that is implemented to be used as material for further improvement.

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