Business enterprise architecture in fitness center using the open group architecture framework

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Article Info

ABSTRACT

Sports currently have an impact on human life, especially in the health sector. One way of exercising that is popular with many people today is by exercising at the fitness center. One of them is a fitness center located in Bandung. This research aims to obtain design results that can adapt business processes in fitness centers and can help the company's performance so that its vision and mission are achieved. The current business process is still experiencing problems because business has not yet been integrated with information technology (IT), so a business process proposal was made using the business architecture method. By conducting interviews and observations, data can be collected. From this data, it can be seen that business implementation in fitness centers is not yet optimal, so it is necessary to develop information system technology that is in line with the company's business. This technology development is based on business architecture which produces a company blueprint and is assisted by the open group architecture framework (TOGAF) which can help analyze company needs. The results of this research are in the form of recommendations which will later be proposed so that benefits for the company can be achieved more quickly.

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1. INTRODUCTION

Fitness is an activity that can make a person fit, with weight lifting, aerobics and nutrition now becoming a lifestyle for urban communities around the world [1]. This activity is a body or muscle-building movement that is carried out regularly and periodically, which aims to maintain a healthy body so that it remains fit and strong. Two main factors can influence a person's health condition, namely factors that include hereditary variables, age, orientation, nutritional status, smoking tendency, exercising tendency, welfare status, years of work, and alcohol consumption [2]. As a place that provides and organizes physical training programs, which not only obtain direct benefits such as increasing the level of physical and health. Currently, there are many places to exercise in Indonesia, both in big cities and small towns. One of the places in Bandung currently has 2 branches, the first at the Metro Indah Mall shopping center, and the Bandung electronic center. The more widespread the various fitness centers, the more people are interested in training at these places. Training centers have become a popular place for some individuals to improve their well-being and get fit and achieve an optimal body. In general, men will generally take part in a thorough weight lifting schedule using free weights, while women often choose workouts that are fully supported by a trainer [3]. The sports community also provides coaches to beginners who think they should exercise. Many

women will use the services of personal trainers. Members can consult with a personal trainer after making payment.

The fitness center website displays a catalog with offers on home, business, and activity items. Customers can contact staff via WhatsApp for prices, as they are not displayed on the site. Offers a variety of classes, but manual scheduling could potentially lead to empty slots. Lack of automation in managing memberships results in challenges such as errors in renewal reminders and delays. Manual systems complicate registration, renewal tasks, and payment management, causing administrative problems. Implementing an automated system will increase efficiency [4]. Reduce errors and make it easier for members to book classes and expand membership with staff intervention at the minimum.

Enterprise architecture (EA) is utilized to coordinate existing business processes, in this manner further developing business processes inside the organization and adjusting them to the goal of the organization's business process and is a blueprint that explains how the information technology (IT) elements and information management work together [5]. This strategy can be depicted as a visual portrayal or outline that adjusts an association's vision and mission business design with data innovation. It includes the interaction of information, applications, and innovation inside the association [6]. Although existing studies have explored the costs, benefits, and potential applications of EA, there is a lack of empirical research on the factors influencing EA implementation in organizations, specifically in the public sector [7]. This strategy uses guidelines to survey the current situation, imagine expected future situations, and foster methodologies for accomplishing wanted results [8]. This undertaking models incorporate portrayals or depictions of the business, business processes, data, applications, and framework inside an association [9]. They offer an exhaustive outline of an association's business and IT frameworks, alongside their interconnections and conditions [10]. It makes sense here that they depict the interrelationships between an association's IT frameworks and its business processes. It characterizes the objectives and wanted results to be accomplished by the association [11]. A decent is brilliant course of action affects the improvement of information systems (IS) and IT in an association [12]. Implementing IS/IT within an association can support effectiveness in almost any area, including assets, business cycles, markets, and the board. Such a design will be important for the improvement of an interconnected framework [13]. The execution envelops major parts, the executive's drives, and documentation techniques in light of laid-out systems [8].

EA displayed inside the open group architecture framework (TOGAF) comprises numerous stages, including the fundamental stage, compositional vision, business design, data framework engineering, and innovation engineering [14]. This strategy frames an extensive direction on building, managing, and executing endeavor engineering and data frameworks [15]. This framework encompasses various components, including business architecture, information architecture (data), technology architecture, and application architecture, and is designed to accommodate IS/IT [16]. This strategy offers straightforward execution and empowers solid arrangement among business and IT areas, bringing about better collaboration and viability [17]. The objective of this strategy is to outfit associations with a deliberate methodology for creating and keeping up with their key corporate goals [18]. The advantage of using this method is flexibility and open source [19]. To furnish clients with labor and products, associations layout cycles, and exercises. In such a manner, an undertaking engineer tries to work with the consistent reconciliation of data advancements IT into these cycles and exercises, especially during the planning stage [20]. The structure includes a progression of exercises coordinated into steps, which are additionally partitioned into iterative stages. These means and stages frame the fundamental exercises for planning, assessing, and executing corporate engineering [21]. Items in this engineering can be utilized for authoritative information on the board processes, examination of hierarchical responsibility conditions, risk the executives and consistency, and framework prerequisites investigation [22].

TOGAF is generally perceived as an entirely reasonable norm for big business improvement in light of common sense and accuracy can give significant designs and parts [23]. TOGAF is widely employed in the enhancement of corporate architecture and offers methodologies and tools for constructing, overseeing, implementing, and sustaining enterprise models and IS [24]. Bringing out improvement through this technique, you should rest assured about serious areas of strength to accomplish the ideal outcomes [25]. This strategy is a far-reaching technique that relates to the turn of events and execution of the board processes exhaustively [26]. The result of utilizing the technique is the making of a plan and outline that works with the improvement of an incorporated data framework [27]. TOGAF consolidates explicit strategies used to plan structures. This specific technique fills in as a significant reference for displaying endeavor design improvement, furnishing an organized methodology with thoroughly tried stages and progressively works being developed [28].

2.   RESEARCH METHOD

This section will explain the research methodology used by the author in conducting this research. The methodology used is the TOGAF methodology which is focused on phase B, namely business architecture. The research methodology can be seen in Figure 1.

The research steps will consist of: i) The preliminary phase, which explains about preparation and initiation activities required to encounter the business directive for a new EA [30]; ii) Phase A, architecture vision, describes the initial phase of the architecture development process. This includes information about defining spatial boundaries, identifying stakeholders, creating an architectural vision, and getting approval [23]; and iii) phase B, business architecture, explaining the development of business architecture to support an approved architectural vision [31].

−   Value chain analysis, explains strategies used to understand a company's competitive advantage better, to identify where customer value can be increased or where costs can be reduced and to understand the company's customer relationships with suppliers, customers, and other business industries [32].

−   Enterprise planning model interaction, explains timeline implementation, and the application proposal roadmap consisting of several categories, such as short-term, medium-term, and long-term timelines [33].

−   Gap analysis of business architecture, explains the business gaps, in this case, looking at the current business processes and the business processes designed as a result of the EA design [34].

−   Design business architecture, explaining business processes in the fitness center so that problems can be identified, and company goals can be achieved [6].
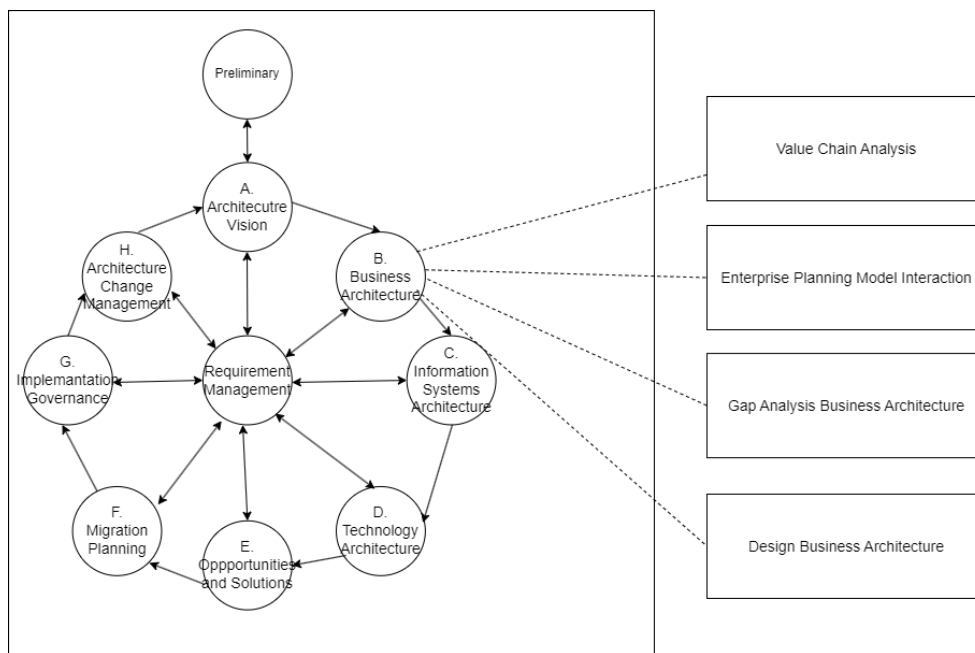

Figure 1. Research method [29]

3.   RESULTS AND DISCUSSION

This section will discuss value chain analysis, enterprise planning model interactions, business architecture gap analysis, and business architecture design. In this discussion, we will present the results of the proposals obtained by the researchers. This discussion falls within the scope of phase B of the architecture business.

3.1. Value chain analysis

Value chain analysis will analyze primary activities and support activities. Primary activities consist of inbound logistics, operations, outbound logistics, marketing sales, and service. Support activities consisting of firm infrastructure, human resources management, technology development, and procurement [35].

i) Primary activities
− Inbound logistics, recording new members who register at the gym.
− Operations, this operational activity is in the form of fitness activities of the members carried out in our gym. Then there is also a class schedule that can be followed by our gym members.
− Outbound logistics, with them gym members, are expected to be healthy and fit. Obtaining the ideal body so that the results obtained are maximum.
− Marketing sales, marketing sales promotion is carried out through social media such as Instagram and Facebook. Promotions are often done by inviting fitness influencers to promote our gym venues.
− Service, this service provides good service from the beginning, wanting to register for the gym, then help members when there are difficulties when doing exercise. Provide complete facilities so that the members can practice seriously and enthusiastically.
ii) Support activities
− Firm infrastructure, consisting of warehouses for storing goods, there is a store intended for prospective customers who want to buy gym goods that can be directly in the store because the location of the store is next to the gym. For this gym provide as complete as possible so that prospective new members can enjoy the facilities provided.
− Human resource management consists of personal trainers where the price of the gym member package does not include personal trainer services. Then IT Support is needed for gym application maintenance and integrating quick-response (QR) machines with applications that have been developed in such a way. Then next is the gym admin, which is useful for serving potential new customers if you want to register.
− Technology development, in this technology proposal, proposes to use the gym application. It is intended to make it easier for gym members to do attendance at the beginning and end after finishing. To scan the QR, it is used to do member attendance which will be directly checked by the gym admin. This admin application helps admins in business process activities. Also, e-commerce sells fitness products.
− Procurement, of proposed equipment in the form of QR machines, deadlift platforms, powerlifting racks, and saunas.

3.2. Enterprise planning model interaction

Enterprise planning model interaction authors will discuss the application proposal roadmap consisting of several categories, such as short-term, medium-term, and long-term timelines. In the short term, there is a proposal for an application in the form of a member application. In the medium term, there is a proposal for an application in the form of a staff application, and in the long term, there is a proposal for an application in the form of a website for companies. The implementation will be carried out in July 2024 [36].

In the roadmap explanation, there will be seven main stages, namely the analysis stage, requirements stage, design stage, development stage, testing and integration stage, deployment stage, and maintenance stage. Where there is a short-term category, within 1 year the application will be implemented. For the medium term, within 2-4 years the application will be implemented. Because this application does not support the main business process, the main business process will continue to run, for the long term, within 5 years or so this application will also be implemented. The proposed application in the long term will help the main business processes as a whole, so this application is placed in the long term. This roadmap is depicted in the form of months and weeks. The maintenance phase will be carried out periodically so that the roadmap image will be depicted one week in advance. This priority distribution is adjusted to the main business needs and those that support the company's own business [37].

3.3. Gap analysis business architecture

In the architecture business gap analysis, there will be business processes and descriptions. An explanation of the gap analysis can be seen in Table 1 gap analysis business architecture. The table explains the business process and information.

The business architecture gap analysis, which is part of the requirement management phase in TOGAF, focuses on comparing the existing business architecture within the company to the desired future business architecture. This section aims to highlight the disparity in business aspects between the current state and the envisioned future state of the company. The current business architecture delineates the existing IT utilized by the company and its current impact, whereas the target business architecture outlines the planned IT and technology strategies to be implemented in the future.

Table 1. Gap analysis business architecture

Business process	Description
Accepting the new member	The process of accepting new members will be through a website that has been redesigned. So new members can register directly on the website.
Promotion gym	The gym promotion process will be carried out by managers and supervisors at the fitness center. One form of promotion is inviting gym influencers.
Finance	This financial process is obtained and collected by the receptionist and admin. This data will be processed and made into financial reports every month through the gym application and employee application.
Data member	This member data will be collected by the receptionist in the gym application. This member data is obtained when members fill out registration via the website.
Activity gym	This gym activity will consist of self-training and training using the services of a personal trainer. Class information is provided in the gym application

3.4. Design business architecture

This phase will discuss the design of business architecture which leads to phase B of TOGAF, namely business architecture. This architecture starts with the start of business processes in the fitness center so that problems can be identified, and company goals can be achieved. Problems that occur and the targets to be achieved are analyzed, resulting in an adjusted gap analysis. Once adjusted, it will be confirmed with the company's architectural vision. The following architectural business drawings are current, as can be seen in Figure 2.

The following is an explanation of the current architect business, which can be seen in Figure 2. Current architecture business: i) Customers come to register through the receptionist at the fitness center. Customers can ask the receptionist first about member prices, facilities, and personal trainer programs. The receptionist is also required to take the customer around the fitness center so that the customer knows what equipment the fitness center has and explains what equipment is available; ii) If the customer wants to register, the receptionist must guide the customer to complete the registration form. After registration, customers are asked to make payments which can be made via transfer, debit card, and cash. After payment, members will receive a payment invoice and member card; iii) If a customer wants to use the services of a personal trainer, they need to discuss with the personal trainer first to discuss the training program and costs. If the customer is interested in using this service, the customer can practice following the program that has been created; iv) Customers can do gym activities directly. Customers can also take gym classes provided by the fitness center. Class information can be seen in front of the fitness classroom. The class is held from Monday to Friday, both morning and evening; v) Gym activities will be monitored by supervisors, also responsible for monitoring social media and monitoring comfort and cleanliness which will also be prioritized, there is a cleaning service to do this. If a tool is damaged and needs maintenance, a technician will be called to carry out repairs on that tool. If the tool can be completed, then the customer can use it again. However, if the tool requires a long maintenance time, then the tool cannot be used in the first place; vi) Data collected by the receptionist will be given to the admin for processing member data and financial data; vii) Admin also does bookkeep, and the results of this bookkeeping will be given to the manager every month; and viii) the manager submits monthly financial reports to the director. The manager is also responsible for distributing salaries to employees every month. The manager also monitors social media with uploaded content.

In current business processes, there are still many manual systems and many processes are still complicated. These systems are not yet integrated with each other, so a proposed business process with 4 applications is proposed that integrates the architectural business IS with company IT. This proposed application is provided to help the company's business processes to more easily achieve the company's vision [38]. The recommended application is a website that is useful for registering forms and displaying the latest product catalogs. The next application is the gym application, which is useful for member attendance and due payments. Personnel application that is useful for collecting member data, employee data, and employee payroll. E-commerce here is useful for purchasing products provided by pre-order and direct purchase. For an explanation of the proposed business process, it will be explained in Figure 3. Proposed business architecture.

The following is an explanation of the proposed business architecture, which can be seen in Figure 3. Design business architecture: i) customers can visit the website to just view the product catalog first and can register if they want to become members. On the website, it is clearly displayed regarding member prices for 1 month, 3 months, 6 months, and 1 year. The benefits provided for each month's package are also different. The product catalog provided is also very diverse and matches the existing categories, from heavy equipment to light equipment such as dumbbells, and gym accessories; ii) Registering, the customer can provide information to the receptionist that he has registered via the website. Then the receptionist asks the customer to open the gym application from the website and create an account; iii) Creating an account, customers can access the gym application which consists of attendance, payment due, and existing gym class

information. This gym application has quite clear information about the customer profile, which package to take, the member card, and the expiry date; iv) If a customer wants to use the services of a personal trainer, they need to discuss the training program and costs with the personal trainer. Usually, customers will discuss what their goals for fitness are, discuss food and what supplements to use; v) The member data will be processed by the receptionist first so that the admin can easily access the data and immediately process it to make a financial report; vi) This data will be processed in the human resources application, where these human resources applications will consist of employee attendance, member data processing, employee data, and payroll; vii) Personnel application, managers can access financial reports that have been created and processed by the admin, managers are required to report to the director regarding financial reports; viii) The product catalog on the website can be accessed in the e-commerce application. There are several categories of products provided, making it easier for customers to find products. Heavy products will be pre-ordered first, if the tool can be processed immediately then there is no need to pre-order; and ix) order is complete, it ends with payment and reviewing the products that have been purchased. Customers can also comment on the product.
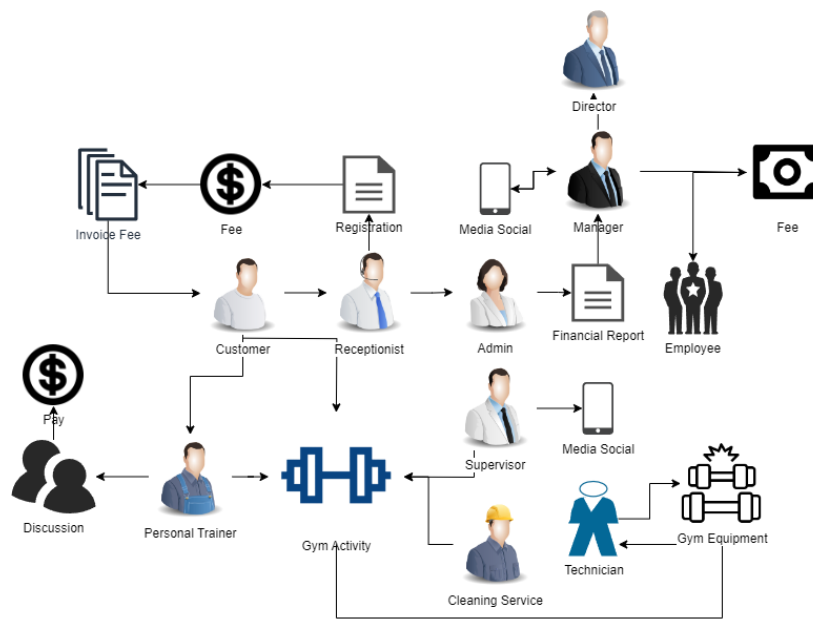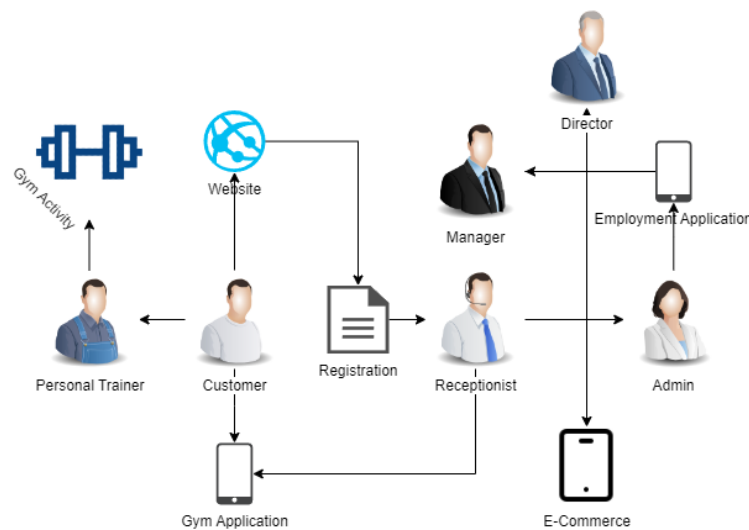

Figure 2. Current business architecture

Figure 3. Proposed business architecture

4. CONCLUSION

This research is to use the TOGAF framework to describe, formulate, and build an appropriate architecture for a fitness center. This company operating in the fitness and sports sector is grappling with ongoing operational challenges caused by a lack of support in its business processes through IS/IT because the IS are already integrated with each other. By focusing on business architecture, target architecture results will be obtained where all business functions will implement IS that are integrated between applications, and in the form of a blueprint for a proposal for implementation in fitness centers. There are several proposed applications, namely the proposed application is a website that can register new members and a product catalog. The gym application will function for members to take absences and make due payments. The proposed personnel application will manage employee data and member data, then for employee payroll. The proposed e-commerce application allows customers to purchase products consisting of 2 types of selection, namely pre-orders and direct purchases. It is hoped that the resulting blueprint can help companies to be more optimal in carrying out their business processes.

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