Implementation of Enterprise Architecture Planning for Business Modelling of Franchise Companies

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Abstract: In the era of the ASEAN Economic Community (AEC) all business people are required to be able to maintain the existence of their business. Various strategies are carried out by business actors to maintain their business and still gain confidence in the public eye. The strategies are one of them is the field of Information Technology. The development of the world of information and communication technology demands business actors to take an active role in utilizing information technology to support their business. This applies also to the franchise business model. XYZ Company is a culinary business unit that uses franchise concept to develop its business. The use of information technology is the company's priority to win the competition. So that information technology planning is very important to be done in order to get the right application for the company. In this research using Enterprise Architecture Planning (EAP) to make planning of information technology development in XYZ company. By using EAP obtained business modeling, data architecture, application architecture and technology architecture that are right for franchise companies. There are nine applications that can be developed in XYZ companies that in the future can support XYZ company to survive and win the competition within the scope of the food franchise business.

1   INTRODUCTION

The development of franchise business in Indonesia is currently very rapid. Almost in all areas of business have used this franchise system to grow their business. Even not only in the sector of consumer or culinary needs that use the franchise system, but business services, retail and education has also penetrated the franchise system. Business franchise in Indonesia has attracted the attention of consumers and businessmen. With the concept of franchise, a person who wants to own a business does not need to start from scratch, because there are already good concepts and systems in the franchise business so that business actors do not need to pioneer the business from scratch. Business franchise is usually a business that has been tested quality and trademark so that the level of public confidence or consumer high. This is what causes the franchise business is growing rapidly, especially in Indonesia.

In the era of the ASEAN Economic Community (AEC) all business people are required to be able to maintain the existence of their business. Various strategies are carried out by business actors to maintain their business and still gain confidence in the public eye. The strategies are one of them is the field of Information Technology. The development of the world of information and communication technology demands business actors to take an active role in utilizing information technology to support their business.

Strategy in the field of information technology one of them in the form of strategic information system. Strategic information system is the information systems used to implement corporate strategy. If the information system is strategic in an organization, then the strategic management process should not only be understood and followed by business managers only, but also by managers of information technology systems (Jogiyanto, 2005).

XYZ Company is one of culinary business especially beverage. XYZ Company has utilized information technology for operational and product marketing. XYZ Company is aware of the importance of information technology to be able to improve the business position so that various information technology strategy is done so that information technology becomes one of the strategic weapon of the company. Information technology architecture planning is very important in a company's strategic

plan, especially in the field of information technology. The information technology architecture will help developers of information systems and information technology in designing and implementing the system. With good planning, there will be no overlap of information systems and information technology.

The research that has been done by Vienna Witanti et al (2016) resulted in information architecture based on Enterprise Architecture Planning (EAP) which includes data architecture, application architecture, technology architecture in fulfilling requirement of system and information technology most right now and in the future. The result of information technology architecture based on Enterprise Architecture Planning (EAP) is to describe the relationship between organizational goals with information system and support the information system architecture and information technology organization plan to achieve the vision and mission of Geophysics Climatology Meteorology Agency.

Research conducted by Emmanuel Nowakowski et al (2017), states that this paper presented the results from a series of expert interviews and a structured literature review on the topic of Enterprise Architecture planning. One of the results of the expert interviews was that the interviewees had a different understanding of EA planning. Another result was that the comparison and analysis of scenarios happened mostly visually in a non-structured way. Additionally, requirements for EA planning were derived and presented. Moreover, it could be seen that practitioners are struggling with challenges in the field of EA planning .

The research done in this XYZ company uses Enterprise Architecture Planning (EAP) framework. According to Sutono (2015), Methodology Enterprise Architektur Planning (EAP) is based on the enterprise business model, thus alignment between information systems and business can be achieved. Data driven and dependent also underlie EAP so that information systems integration can be managed for enterprise level. The integration of information systems aims to reduce barriers between organizational units, reduce duplication of effort, reduce costs, improve employee productivity and facilitate information sharing and collaboration essential to improving customer service.

This research will produce an information technology architecture plan that will be used as guidance in information system and information technology development. The planned information system and information technology is expected to become XYZ's strategic weapon in winning the franchise beverage competition and expanding its franchise region.

2 LITERATURE REVIEW

The business process model describes the functions associated with business activities, which include input, control, output, and mechanism / resources used from the activity. This model is used to understand how existing labor and resources are used to make products or services for corporate customers. Also to identify repairable parts, be made more efficient and reengineered, and provide an understanding of whether Systems / Applications can be automated or streamline the process of human or machine interaction, by identifying system requirements.

While the business model is a process for defining business. The usefulness of a business model is to provide knowledge about enterprise business in a consistent, comprehensive and complete manner so that it can be used to define architectures and implementation plans. In enterprise architecture planning, business modeling is carried out in two separate parts, the initial business model, followed by a complete business model. There are three steps of activities to develop the initial business model, namely:
1. Document the organizational structure.
2. Identify and define business functions.
3. Document the initial business model and then distribute it and present it to the business community to get input and comments (Surendro, 2009).

The business model can be used as an instrument that can be used as an additional component that is used as an analytical tool to provide value to the community. With the analysis in the business model, it can create a new value chain, which can be used as one of the advantages in providing value in a dynamic environment. The addition of components in the value chain using business model components can create a complex business climate and create value in the community (Kristiani, 2015).

Value Chain Analysis, is a tool to understand the value chain that forms a product. This value chain comes from activities carried out, ranging from raw materials to the hands of consumers, including after-sales services (Shank, 1992). Value-chain analysis is a strategic analysis tool used to better understand competitive advantage, to identify where customer value can be increased or reduced costs, and to better understand the company's relationship with suppliers/suppliers, customers, and other companies in the industry . Value Chain identifies and connects various strategic activities in the company (Porter, 1985). The purpose of the value chain analysis is to

identify the value chain stages where companies can increase value for customers or reduce costs. Decreasing costs or increasing value added can make companies more competitive.

Value chain analysis can be an analytical tool to see the role of IS / IT in the company's business processes. In the value chain analysis is re-analyzed key activities in business processes related to other entities that are outside the company, such as suppliers and customers (external value chain) and relationships between entities within the company itself (internal value chain).

The study by Paul P. Tallon gives a conceptual model that describes that the Strategic intent for IS / IT and Management practices have a direct influence on the value chain that leads to the company's performance.

3 METHOD

Data collection in this research using interview and observation method. Interviews were conducted with XYZ business owners and franchisors. The observations were conducted at XYZ company headquarters and several franchise outlets. From the two methods of data retrieval obtained data to be used in research. These data, among others, business processes, corporate strategies, corporate objectives, enterprise systems and information technology that has been used.

For the preparation of information system and information technology development plan in this research used EAP (Enterprise Architecture Planning) framework. This EAP framework makes it possible to get a detailed overview of business architecture, data architecture, application architecture and technology architecture that is essential in the guidance of information system and information technology development.

Enterprise Architecture planning (EAP) is the process of defining the architecture of the use of information in support of business and the plan to implement it. EAP is a methodology developed to build enterprise architecture and part of the information system planning process that can achieve long-term information system mission (Spewak, 1992).

EAP adopts the first two rows and three columns from the Zachman framework and generates blue-print from data, applications and technologies. EAP is a methodology based on business drives and data drives because:
1. A stable business model (free of organizational boundaries, systems and procedures) is the foundation for enterprise architecture.

2. Data is defined first before defining the application.
3. Data dependence determines the circuit in implementing the application system. EAP focuses on defining data architectures, application architectures and technology architectures for the entire enterprise rather than design for specific purposes (Sutono, 2015).

Enterprise Architecture Planning has 7 (seven) main components that show the stages to determine and plan the implementation of information system architecture. These seven main components are grouped into 4 (four) layers (Spewak, 1992).
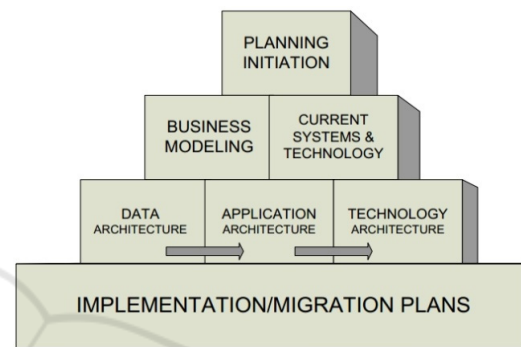

Figure 1. Enterprise Architecture Planning (Spewak, 1992)

Each layer reflects the sequence and way the activity is carried out. Explanation of the EAP component in Figure 1 is as follows:

1. Layer 1 (starting position)
Planning initiation: preparing for the implementation of the EAP project (such as: creating a work plan, ensuring management commitment and others).

2. Layer 2 (Current position)
   a. *Business modeling:* gathering knowledge about business and information used in running a business.
   b. *Systems and technology today:* determine the current systems and technologies as a basis for long-term migration plans.

3. Layer 3 (Position desired in the future)
   a. *Data architecture*: determine the main types of data needed to carry on business.
   b. *Application architecture*: determines the type of main application needed to manage data and supports business functions.
   c. *Technology architecture:* determines the technology platform needed to provide an application environment that manages data and supports business functions.

The arrow in this layer means that these three architectures are determined sequentially starting from the data architecture, then the application architecture and finally the technology architecture.

4. Layer 4 (How to achieve it)

Implementation plan: determine the stages of application implementation, implementation schedule, and propose a clear path to migrate from the current position to the desired position in the future.

Differences in enterprise architecture planning with other traditional information systems planning are:

1. Architecture can be found in a functional business model. The enterprise architecture planning activity begins with the question "What business does the organization do" and not "What systems do enterprise executives need?" Thus, it can be said that enterprise architecture planning is business driven planning.

2. Enterprise architecture planning defines data before application. So the first step to do in this activity is to identify what data is needed to support the business, and then define what applications are needed to manage the data.

3. Enterprise architecture planning uses data dependency to determine implementation plan. The priority of application implementation in enterprise architecture planning is based on data dependency, which means that the application development plan will prioritize application development that creates data instead of using data. This application development approach is called data-driven planning.

4. Enterprise architecture planning takes into account short-term operational activities and also focuses on the organization's long-term strategy of using data and technology to support the business (Surendro, 2009).

4 RESULT

The results of the research have been done in the business model, data architecture, application architecture and technology architecture so that it can be a reference in the implementation plan of information system and information technology development.

4.1 Business Modeling

This business modeling stage compiles and builds a knowledge base on business and information that businesses are currently using. Business modeling also allows for a consistent, comprehensive and complete model of business enterprise that can be used to define architectures and implementation plans.

The business model is depicted in a value chain that refers to Michael E. Porter's theory. According to Porter (1985) activities in the organization are grouped into two major activities, namely the main activity and supporting activities (Porter, 1985).

The business model of the XYZ company is depicted in Figure 2 using the value chain model.
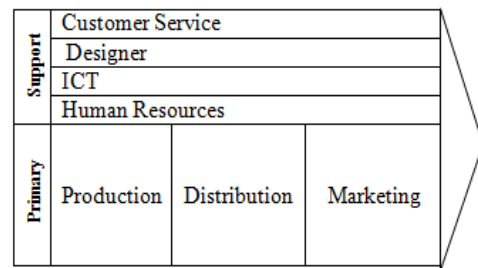

Figure 2. Value Chain

Value chain model in figure 2 obtained three main activities and four supporting activities. Main activities include production, distribution and marketing. While supporting activities include customer service, designer, ICT and human resources.

Production activity at XYZ company is an important activity in business process. The company will continue to improve the quality and quantity of production so that the business processes of the company continue to run smoothly. Supervision and quality control remain to be done so that the resulting product meets the production standards and the same in all franchise outlets. Production activity becomes the main activity in the company because without the production company will not run.

Distribution activity is the activity of distributing products from the center to franchise outlets. Distribution activities in the franchise business is a distribution system to the consumer in the distribution where the brand owner gives the right to individuals or companies to carry out business with brands, names, systems, procedures and ways that have been defined previously within a certain time covering a certain area.

Marketing activities in XYZ company is an activity promoting products in this case beverages by using various media to reach consumers and franchise partners. This marketing activity in addition to promoting the product, also a bridge for entrepreneurs who want to become a franchise partner company XYZ.

Customer service activity is an activity as a forum for consultation for partners in running the franchise business. Question and answer facility about XYZ franchise and various tips and tricks become part of this activity. This activity is a support activity of running business process in XYZ company.

Designer activity is a supporting activity of the company to support the marketing part in promoting the product. Designers create creative designs to make products and brands more attractive to the public. Not only design for advertising purposes, but also product design, beverage packaging, booths, catalogs, and so on.

ICT activity is an activity supporting the IT department to support the company's information technology. XYZ Company already uses information technology in all its activities. The ICT part is responsible for the development of information systems and information technology to support business process activities so that the company will win the competition in the culinary business world with the franchise system.

Human Resources Activities is an activity related to human resource development. In the franchise business, the franchisees will also get training that is useful for themselves as well as business development.

As for the do marketing strategy process, the main data is marketing and to support the main data this process uses data market and management. Market data is data that contains the target market so that it will be able to support the marketing process to carry out its functions to the fullest. The marketing process also involves data management because the marketing process of one of its targets is to capture franchise partners who certainly need data management. Data management itself is generated from the management process managed by the owner and manager. The existence of processes and data management itself is to support the franchise business model so that it can grow its business by capturing many franchise partners and consumers.

4.2 Data Architecture

The data architecture identifies and defines the main types of data that support business functions that have been defined in the business model. The data architecture contains the data entities, each entity has attributes and relationships with the data entity. The data architecture stage is said to be successful when a conceptual data model is generated that describes the details of the data so that it is sufficient for planning purposes.

Figure 3 below shows the data matrix before a conceptual data model is formed.

Process		product (1)	packaging (2)	distribution (3)	partner (4)	outlet (5)	transportation (6)	information (7)	market (8)	IT (9)	services (10)	human resources (11)	marketing (12)	management (13)
Production	1	C	U											
design product	2		C		U								U	
product delivery	3	U		C		U	U							
partner recruitment	4				C				U				U	U
making outlets	5				U	C								
provide shipping transportation	6			U		U	C							
provide information to the public	7							C			U		U	
looking for target markets	8								C				U	U
managing IT	9									C	U			
doing good service	10							U			C			
manage human resources	11			U								C		U
do marketing strategy	12								U				C	U
management	13													C

Figure 3. Data Matrix

Figure 3 is a matrix of data and process relations. This matrix is the basis for conceptual data modeling. There is a description of "U" and "C" in the matrix. In the matrix "U" states "Use / Update" which means using data. "C" states "Create" ie can create data.

Judging from the data matrix there are thirteen processes and thirteen related data. In the production process can create product data and use packaging data to perform its function. The product design process can create packaging data and can use data outlets for outlet design and marketing data for ad design creation. Likewise with other processes and data corresponding to "C" and "U" in the data matrix depicted in Fig. 2.

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4.3 Application Architecture

The purpose of the application architecture is to define the types of key applications needed to manage data and support enterprise business functions. The application architecture is not a system design or system requirement analysis, but it is the definition of what applications are needed to manage data and provide information for users to do business.

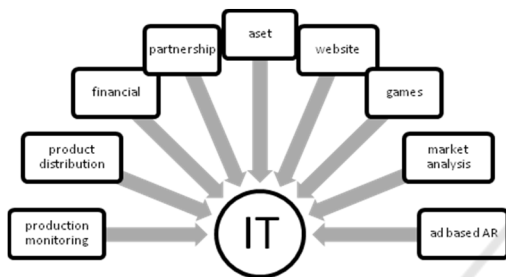Figure 4 below is a proposed chart of information systems and information technology to be developed.

Figure 4. Aplication Architecture

Figure 4 shows the application chart to support the advancement of business with the franchise business model. There are nine applications that will be developed in XYZ company.These applications include production monitoring information system, product information distribution system, financial information system, partnership information system, information system assets, website, games, market analysis information system, and ad based augmented reality.

The franchise business model desperately needs a fast, precise and real time information and communication service to support the smooth running of business processes. So the application developed must also support these needs, Applications that will be developed on the company XYZ web-based and mobile so that will facilitate users in accessing information.

Production monitoring information system is a web and mobile based application that functions to monitor production activities from raw materials to be ready for distribution.

Product distribution information system is an application that is able to regulate and monitor the distribution line from the production warehouse to the franchise outlets. The distribution team will report product and item data that has arrived at the outlet into the information system. The existence of this information system will facilitate the marketing and management departments in overseeing the product distribution lines.

Financial information systems are applications that can facilitate the financial part of managing financial statements. The increasing number of franchise outlets, of course, the tasks of the finance department are more and more, so it requires the help of information systems to help ease their duties. The profit sharing system still applies to these franchise companies like other franchise companies. So that the finance department still has to regulate the financial system regularly. In addition, the collection of financial statements of cash inflows and cash outflows is also the responsibility of the finance department. So that the existence of the financial information system will be able to assist the finance department in carrying out its duties properly.

The partnership information system is an application that facilitates interaction between management and franchise partners. This application provides chat features and business training classes from management to partners. So that the partners will easily get business assistance through this application.

An asset information system is an application for data collection of all assets owned by a company. The application allows the management section to control central assets and those that will be given to franchise partners.

The website can be a trusted source of information about companies that can be accessed by anyone and anywhere. Prospective customers and potential partners can search for information about products and companies to the partnership system on this website. Aside from being a source of information, the website also serves as a branding of corporate brands so that it will increase public confidence in the products sold.

Some mobile-based games that can be played on Android or iOS will also be developed. The growing popularity of mobile phones will certainly be an opportunity to introduce brand products and branding through games of all ages.

Market analysis information system is a decision support system that functions to analyze the target market. This application makes it easy for the marketing department to create strategies to expand its market.

Ad based AR is an ad based on augmented reality technology. This AR technology can insert certain information into the virtual world and display it in the real world with the help of equipment such as webcams, computers, Android phones, and special glasses. Users in the real world cannot see virtual

objects with the naked eye, to identify objects needed an intermediary in the form of computers and cameras that will insert virtual objects into the real world. Advertising using this technology is expected to be branding the brand and making the brand increasingly known to the public.

4.4 Technology Architecture

The purpose of the technology architecture is to define the types of key technologies needed to provide an enabling environment for applications, on previously prepared application architectures, in managing data and supporting business functions. The technology architecture is not a detailed requirement analysis or network design but is the definition of the type of technology that will support the business by providing a data sharing environment.

4.5 IS/IT Mapping

Mapping of information systems and information technology serves to look at IS / IT in XYZ companies. Table 1 shows mapping using McFarland Strategic Grid.

Table 1. IS/IT Mapping

Strategic	High Potential
1. Partnership 2. Market analysis	1. Ad based AR
1. Production monitoring 2. Product distribution 3. Financial 4. Aset	1. Website 2. Games
Key Operational	Support

Based on Table 1, the proposed information system and information technology will be mapped by placing it in the McFarland Strategic Grid quadrant. The following is a description of the mapping.

a. Strategic, indicates that the application is in a critical position to the success of the organization's business. Applications build (or change) the way organizations do business, by providing competitive advantages.

b. Key operational, indicating that the application is built to sustain business operations and help avoid any deficiencies. Applications in this quadrant are must-have applications for every organization to survive in business competition.

c. Support, indicates that the application can improve the efficiency and effectiveness of management, but is not an application that must be owned by a business or type of application that creates competitive advantage.

d. High Potential, indicates that applications may create new opportunities for the business for the future, but have not been proven.

After mapping, an information system roadmap is carried out which is a road map to be the direction or reference used for the development of strategic information systems. On the roadmap will be made a direction to develop information systems and information technology in the medium term for the next three years from 2019 to 2021.

The next three years will be known which information systems need to be built to gain competitive advantage and help companies achieve their goals. The reference for making the roadmap is based on the priority table and McFarland Strategic Grid mapping. Urgent or highly prioritized information and technology systems will be mapped in the initial year. In addition to the McFarland Strategic Grid mapping, information systems in the operational key quadrant receive prior implementation priority.

In McFarland Strategic Grid mapping, the information system in the operational key quadrant becomes a priority. In the operational key quadrant, it is expected that the information system can strengthen internal conditions, especially daily operational activities. The second priority is a strategy quadrant that can provide information that supports strategic decisions and provides long-term benefits. The third priority is the support quadrant to improve the efficiency and operational effectiveness of the company. The final priority is the high potential quadrant because in the near future the information system does not provide added value.

5 CONCLUSIONS

Based on the analysis that has been made can be concluded that in the development of information systems and information technology on the franchise business model is needed information based on user data needs. Business modeling in a company is very important for the identification of information needs so that it will produce an appropriate architecture on the needs of users.

Based on the results of the conclusions made from this study, the suggestions that are expected will later be useful in the development of further research. The suggestions include:

a. Use of other approaches to compare with existing research.
b. Proposed information and technology systems are more detailed by adding stakeholders and proposed features.
c. Utilizing a questionnaire to determine the information system needs from the user side.

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