Enterprise Architecture Planning Information System at Bus Rental Service Company

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Abstract
In increasing customer satisfaction, convenience and improving the quality of the company. The company engaged in bus rental services is PT. Transaba wants to have a digital platform and an integrated management system in the Company. One way is to do enterprise architecture planning to find out what systems/applications are urgent to create. The EAP framework provides the direction desired by the Company with its stages, including planning initiation, business modeling, current systems and technologies, data architecture and application architecture, and technology architecture. In this planning, the Company's directions and guidance regarding what must be done first to achieve the objectives, namely Procurement and installation of infrastructure, Customer Management System, Reservation management system, Scheduling and route system and Human Resources Training

1. Introduction

PT Trans Saba is a company engaged in tourism transportation and has a loyal customer base. In order to improve quality, the company plans to have a representative digital platform and an integrated management system so that its customer reach is wider.

PT Trans Saba faces several problems, including limited information coverage because it still relies on conventional media. This makes it difficult for potential customers to access service information in detail. In addition, the opportunity as a tourism transportation hub that connects various regions of Java and Bali is one of the considerations for the planning of the business architecture of the management information system in the Company. So that if the Company's reach is wider, the Company's management will also be digitally transformed.

 1.1 Literature Review

1.1.1 Enterprise

According to Spewak, an enterprise is an organization or cross-organizational body that supports the business scope and mission that has been set. (Arifin, 2022) According to the Software Engineering Institute (www.sei.org), an enterprise is an activity that has a specific purpose. A group of people with a specific goal, who have the resources to achieve that goal.(Yobi, 2022)
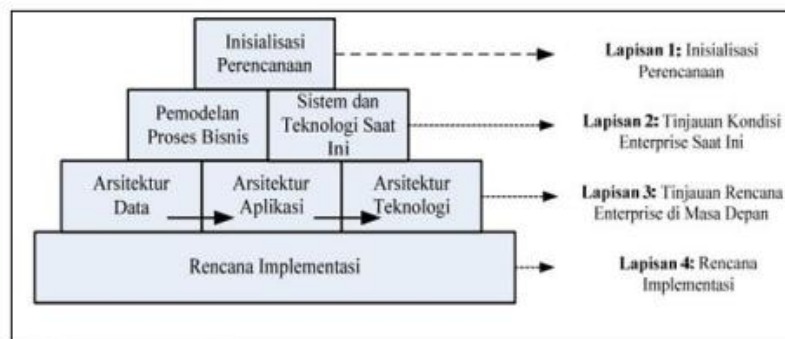
1.1.2 Architecture

According to the Software Engineering Institute (www.sei.org), architecture is the structure (structured picture) of each activity. (Arifin, 2022)Based on IEEE 1417-2000, architecture is the fundamental organization of a system, consisting of several components. The relationships that occur between components and their environment, as well as the principles used as guides in their design and evolution(Purwidiantoro & Widiati, 2017)

1.1.3 Enterprise Architecture Planning (EAP)

Enterprise Architecture Planning is a method used to build an enterprise architecture developed by Steven H Spewak. According to him, Enterprise Architecture Planning is an architectural planning method that is oriented to business needs, consisting of data, application and technology architectures accompanied by implementation plans for the architecture that has been made in order to support business activities for the achievement of the organization's mission. (Rerung, 2017)Enterprise Architecture Planning is not designing the business and its architecture, but defining the needs of the business and its architecture. Enterprise Architecture Planning is a framework that describes the architecture of data, applications and technologies needed to support an organization's business.(Natanael Krisetya, 2019)

Enterprise architecture planning is a method developed to build enterprise architecture. The stages of enterprise architecture planning development are the stage to start, the stage of understanding the current conditions, the stage of defining the future vision and the stage of developing a plan to achieve the future vision.(Prianti & Papilaya, 2021)

Fig. 1 Enterprise Architecture Planning (EAP) by Spewak

The differences between EAP and Traditional Information Systems are: 1. Architecture can be found in functional business models. The traditional approach to system planning does not begin with the overall definition of the business, but begins with a few questions by the system analyst to stakeholders about their needs, critical success factors or what information is needed. 2. EAP defines data before application. In EAP, the first architecture defines all the data needed to support the business. Once the architecture is complete, the next architecture defines all the applications needed to process the data whereas in traditional information systems it determines what applications are needed 3. EAP uses data correlation to limit implementation plans. Meanwhile, in the traditional approach, stakeholders determine which ones must be implemented first. 4. EAP considers both short-term operations and long-term strategic focus. In using information and technology to support business.(Kurniawan, 2011)

2. Research Methods

The methodology used in the study is the Enterprise Architecture Planning (EAP) methodology where there are 4 layers/stages. The 4 layers are Layer 1 - Getting Started In the initiation layer, the stages of planning that must be passed, namely, defining the scope, defining the company's vision, the chosen methodology, forming a team and work plan as well as commitments and budgets (rengga herdiansyah, 2017) Layer 2- Where we are today Business Modeling, namely compiling a knowledge base about the business and information used to carry out the current system and technology, namely defining what application systems exist current and technology platforms that support. (Nugroho et al., 2020) Layer 3- Future Vision Data Architecture, Application Architecture and Layer 4 Technology Architecture – How we get there Implementation plan/ migration (Zaliluddin, 2015)

3. Result and Discussion

The results of the research based on the stages of the EAP methodology are as follows:

- Planning Initiation

PT trans saba is a company engaged in tourism services. The service offered is bus rental that serves Java and Bali routes. PT Trans Saba's business position based on the use of the boston matrix portfolio product framework is in the position of cash cow and has the opportunity to become a star when the service experiences growth and its market share is high, especially during the holiday season. From the identification of product services, the determination of the scope of the enterprise is more emphasized on marketing and service to customers. The organizational structure and vision and mission of PT. Trans Saba is as follows
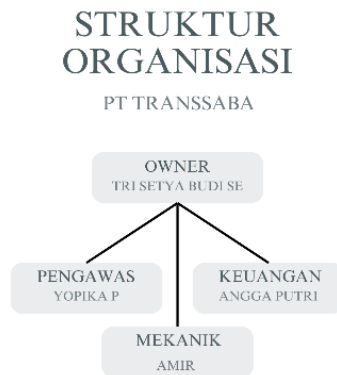

Fig. 2 Organizational Structure of PT. Transaba

- Vision
  To be a reliable, comfortable, and safe tourism transportation service provider, which supports quality tourist trips for every customer.
- Mision
  o Providing a fleet of well-maintained tourism buses and equipped with modern facilities.
  o Providing the best service with professional and experienced drivers.
  o Maintaining passenger comfort and safety is a top priority.
  o Providing flexible and efficient transportation solutions for various types of tourism needs.
  o Prioritize customer satisfaction with competitive prices and friendly service.
- Business Process Modeling
  Based on the results of the observations made, the main and supporting functions in the Company are produced, which are illustrated using a value chain diagram:

Procurement
- Acquiring buses that meet high safety standards.
- Selecting quality spare parts suppliers.
- Negotiating service contracts with workshops and fuel providers.

Human Resource Management
- Recruiting experienced and skilled drivers.
- Training crews to improve service quality (hospitality).
- Implementing incentive systems to boost productivity.

Technology Development
- Online booking applications for customers.
- GPS systems for real-time bus tracking.
- Fleet management software to optimize operational efficiency.

Firm Infrastructure
- Financial management to ensure operational sustainability.
- Strategic management for service expansion and market penetration.
- Policies focused on safety and environmental sustainability.

Inbound Logistics	Operations	Outbound Logistics	Marketing and Sales	Service
- Procurement and maintenance of buses (brand, capacity, vehicle age). - Management of spare parts and fuel supplies. - Partnerships with suppliers (vehicle dealers, repair workshops).	- Fleet management (scheduling, allocation, maintenance). - Cleaning, safety inspections, and regular servicing of buses. - Recruitment and training of drivers and crew. - Booking and service management systems (offline/online).	- Scheduling trips based on customer needs. - Ensuring on-time departures and arrivals. - Monitoring operations during trips (GPS and telematics).	- Promoting services through social media, websites, and travel agents. - Offering tour packages (e.g. city tours, outbound trips). - Partnerships with travel agencies, schools, and corporate clients. - Providing seasonal promotions or discounts	- Customer support (24/7 hotline or chatbot). - Handling customer complaints (feedback and evaluations). - Loyalty programs (discounts for regular customers). - Enhancing customer experience, such as providing Wi-Fi, air conditioning, and onboard entertainment.

Fig. 3 Value chain

- Current Systems and Technologies

The systems and technologies currently used at PT Trans Saba are as follows. Including Laptops, PCs and Printers that have been used for purposes in the Company.

Kind	Units
Laptop	3
PC	2
Printer	2

- Data Architecture

In determining the data architecture, it is grouped into 4 applications that will be used, namely, reservation management system, customer management system, scheduling and route system, website profile. The data architecture that can be used to accommodate the applications used later is as follows:
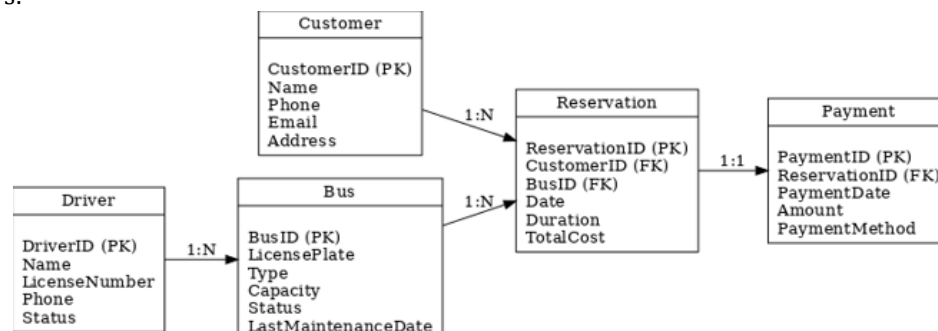

Fig. 4 ERD

- **Application Architecture**

Recommendations for what management systems and applications are used for the Company according to management needs in improving satisfaction and quality of service to customers can be seen in table 1.

Application System Group	Application
Reservation management system	Making tour packages
	Making Expense Reports
	Making Financial Reports
Customer Management System	Website profile application
	User management
	Submission of customer complaints
Scheduling System and route	Transportation data collection
	Destination data collection
	Destination scheduling and routes

Technology Architecture

In the image, it is explained that users, policy makers and employees can take advantage of the features and facilities built on the Transsaba website. The internet network can be directly accessed by the IT Development department because the computer used is also used as a server for the LAN network in the office
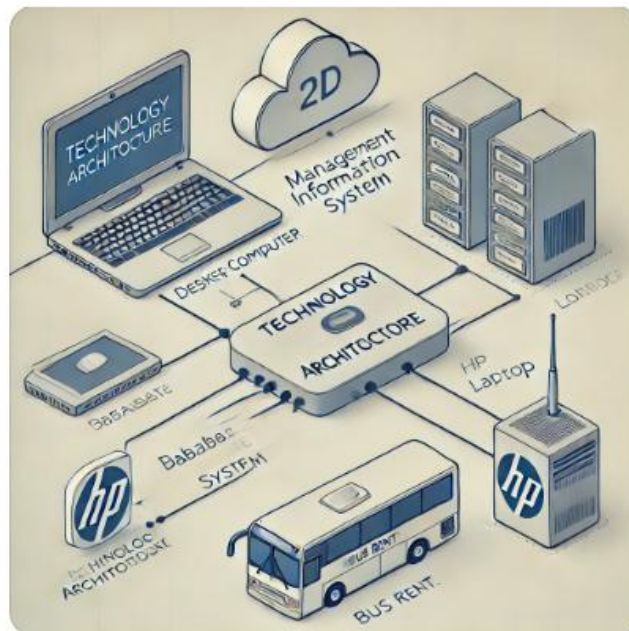

Fig. 5 Technology Architecture

Implementation

In carrying out implementation, it will be described using the implementation roadmap. The stages that will be carried out in the implementation are as follows: 1. Procurement and installation of infrastructure 2. Customer Management System 3. Reservation management system 4. Scheduling System and route 5. Human Resource Training

4. Conclusions

Based on the description that exists at the discussion stage. The following are the conclusions produced, namely: 1. PT Trans Saba can take advantage of the development of energy architecture in its efforts to provide satisfaction to its customers. 2. The development of enterprise architecture will provide benefits for the Company because it can be done in stages according to needs and capabilities but already has a plan for further development.

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