Enterprise Architecture Using TOGAF ADM (Case Study: PT Dirgamitra Pasific)

Delly Vera, Devi Yurisca Bernanda

Abstract— **PT Dirgamitra Pacific is a company engaged in the distributor of car spare parts, which in its operational activities relies on Microsoft Office software to help them. Business process activities that are still carried out manually make the company experience a slight delay when making a financial report and result in obstruction of the decision-making process. All of their important data has not been stored properly so it is prone to damage and loss and confidentiality is not maintained. From the TOGAF phase that has been carried out, the results of a proposed system are obtained in the form of the PT Dirgamitra Pacific website. The website, which consists of a marketing system, purchasing system, inventory system, financial system and staffing system, will later be able to connect with each other so that it can help each division in carrying out their operational activities to run better than before. The design of the enterprise architecture that produces a website is expected to accommodate all activities in each division to run better.**

Keywords—**Enterprise Architecture, PT. Dirgamitra Pasific, TOGAF ADM.**

I. INTRODUCTION

The development of information technology in the current era of globalization has progressed very rapidly[1]. The rapid development of this technology makes the need for the application of information technology to increase, one of the technologies that is often used is the Information System. The need for information systems is high, people want fast but accurate information. This happens because information systems can provide efficiency and effectiveness in supporting activities carried out to achieve the goals that the company or organization has[2], [3]. The use of good IT / IS within the company can also improve business processes, make company performance faster and more accurate[4], [5].

The application of information technology and information systems in business activities is currently very much needed by companies. Almost all fields require technology in carrying out business process activities because it can make the company's activities easier, more efficient and facilitate activities in the company[6].

Although the use of information technology and information systems is very useful, not all companies have implemented them, as happened to PT Dirgamitra Pacific. The operational activities of this company which is engaged in the sale of car spare parts products are still done

manually, they only rely on Microsoft Word and Microsoft Excel software to help them. Business process activities that are still carried out manually make activities less efficient, and make companies experience delays in making financial reports which result in obstruction of the decision-making process. These important data then become prone to loss and the confidentiality is not maintained, even the company also experienced document damage.

Based on the above problems, the authors designed an enterprise architecture at PT Dirgamitra Pacific which produced a blueprint, which can help the implementation of existing activities in the company to be effective and efficient. PT Dirgamitra Pacific requires an enterprise architecture so that in the future they can compete with other companies, be able to align business, data and technology needs[2], [7]. Due to the existence of an enterprise architecture, it is hoped that it can manage complex systems and can harmonize business and information technology so that the company's business processes can run according to targets and goals[5].

The enterprise architecture in this study uses a framework from The Open Group (TOGAF), using the Architecture Framework Architecture Development Method (TOGAF ADM) method. The TOGAF ADM framework was chosen because the TOGAF ADM is a method that can be adapted to changes and needs during planning. TOGAF ADM is also complete in stages and has a systematic structure for making blueprints. TOGAF also provides methods on how to build, manage and implement architectures and information systems [6], [8].

Some of the stages contained in TOGAF include vision architecture, business architecture, data architecture, application architecture and technology architecture. This framework is open source and flexible, which makes the design process easier and more detailed and is suitable for use in a company that does not yet have an enterprise architecture[9].

By holding this research, the authors hope that PT Dirgamitra Pacific can increase the effectiveness and efficiency of work in its business processes and that the system can help support existing business processes in the company.

II. THEORETICAL BASIS

A. Enterprise Architecture

Enterprise Architecture (EA) is a description of an organization that is aligned with the vision and mission of

the organization (business architecture) with information technology, which consists of data, applications, and technology. EA describes a plan to develop a system and EA consists of Planning Initiation, Business Modeling, Current Systems & Technology, Data Architecture, Application Architecture, Technology Architecture, and Implementation / Migration Plans[10], [11].

Enterprise Architecture can also be used as a way to improve IT efficiency when business innovation is developed, so that EA can inform, guide, and limit decisions for an organization or company, when the organization or company wants to invest in information technology (IT)[12]. An Enterprise Architecture design can transform a company's grand plan into operational details, so that an Enterprise Architecture can be referred to as a blueprint for business processes and organizational systems[13].

B. TOGAF ADM

The Open Group Architecture Framework (TOGAF) is a framework that is widely used in the development of corporate architecture. TOGAF provides methods and tools for building, managing and implementing and maintaining enterprise architectures and information systems [14]. Detailed methods and features in the TOGAF framework for developing an enterprise architecture make TOGAF different from other architectural frameworks [15].

TOGAF functions to design an information system architecture in a company or organization, TOGAF has a method on how to build, design, manage and implement an enterprise architecture and information system called the Architecture Development Method (ADM)[8]. ADM itself is a general method that contains phases of activity that run gradually to be used in modeling the architectural development of a company[16], [17].

TOGAF ADM, which is a method for developing an IT enterprise architecture and business requirements, has several stages[6], [15]:

1) Preliminary Phase: Choosing a suitable framework and scope for an enterprise architecture.
2) Requirements Management: Analysis of object requirements and system user requirements, where the purpose of this phase is to analyze and manage architectural requirements for all ADM phases.
3) Architecture Vision: Identify the architectural vision that will be developed, to achieve organizational goals and the scope of the architecture to be developed.
4) Business Architecture: Preparing a business model or business activity to be implemented, identifying existing business actors, functions and processes.
5) Information Systems Architecture: Doing a design on how the information system architecture is developed. The definition of information system architecture includes data architecture and application architecture that will be used by the company.
6) Technology Architecture: Mapping application components that have been defined in the previous phase into technology components, in the form of software and hardware components.
7) Opportunities and Solution: It starts with an

implementation plan and identifies ways of realizing a defined architecture.
8) Migration Planing: An assessment is carried out in determining the migration plan of an information system.
9) Implementation Governance: The implementation governance that has been carried out is designed, the governance that is carried out includes organizational governance, information technology governance, and architectural governance.
10) Architecture Change Management: Define an architectural management plan to ensure that the implementation is as planned.

Fig. 1 TOGAF Phase[6]
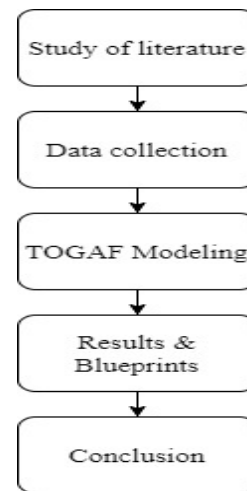
III. RESEARCH METHODOLOGY

Fig. 2 Research Flow [9]

From the picture above, it can be seen that the first step is to conduct a literature study, where the author understands the supporting theories, studies previous research such as journals related to the research theme that the author is doing so that the author has an idea of how to do research.

The second step is to collect data by means of interviews and observations. Interviews were conducted with parties from the study case, and asked several questions. Data

collection is done so that the authors get information which can then be used in research.

The third step is TOGAF modeling which consists of several stages to model the enterprise architecture. Before proceeding to the next stage, the analysis results were obtained after the TOGAF modeling stage was carried out, the information system architecture design that had been carried out was compiled in a Blueprint. This blueprint is the final result that will be achieved from research, where the acquisition of the blueprint is expected to be able to provide maximum results in study case.

The final step when all the stages have been completed, a conclusion is made from the whole process from the beginning to producing a blueprint.

IV. RESULT AND DISCUSSIONS

A. Preliminary Phase

The framework used in this research is the TOGAF ADM framework to help design the corporate architecture at PT Dirgamitra Pacific. The company which is engaged in selling car spare parts has not used technology to the maximum so that all daily work is still done manually which then makes activities less effective and efficient.

Therefore, an enterprise architecture design was carried out using TOGAF ADM with the stages to be used including the introductory phase, needs management, architectural vision, business architecture, information system architecture, technology architecture, opportunities and solutions, and finally migration planning.

In this preliminary phase, 5W + 1H identification is carried out, this is done with the aim of explaining and identifying the objects involved.

1) What
   • Object: Determine what is the object of research and its scope.
   • Description: Designing an enterprise architecture at PT Dirgamitra Pasific.
2) Who
   • Object: Determine who is involved and responsible for making architectural designs.
   • Description: The author is the author and the person in charge of PT Dirgamitra Pasific.
3) Where
   • Object: Determine the location where the architectural design will be carried out.
   • Description: PT Dirgamitra Pacific which is located on Jalan K.H. Zainul Arifin No.3-A, North Petojo, Central Jakarta.
4) When
   • Object: Determine the start time and finish time of the design.
   • Description: From February 2021 to May 2021.
5) Why
   • Object: Why do architectural designs take place
   • Description: To align existing business processes with technology so that the company can carry out its operational activities more effectively and efficiently.
6) How
   • Object: Defines how architectural designs are made.

• Description: This architectural design is made using TOGAF ADM.

B. Requirements Management

The business process for the company PT Dirgamitra Pasific is divided into two activities, namely main activities and supporting activities.
1) Main Activities:
   • Inbound Logistics: Order goods from suppliers; Management of incoming & outgoing goods with the help of the system and Conducting periodic inspections in the warehouse.
   • Operations: Products packaging in accordance with customer order data.
   • Outbound Logistics: Scheduling product delivery to customers and printing travel documents using the system and product delivery by courier.
   • Marketing Sales: Sales are looking for new potential customers and Marketing using online media in the form of a website.
   • Services: Provide good service to customers & suppliers; Receive and resolve customer complaints; Sells the best quality products and allows for indirect communication.
2) Support Activities:
   • Firm Infrastructure: Additional human resources (HRD and IT staff); Using telephone, e-mail and website to communicate; and Prepare financial planning.
   • Human Resource Management: HRD Division is in charge of managing recruitment activities, training new employees and managing employee data; and Management of employee data using the assistance of the personnel information system.
   • Technology Development: Use of a scanner to store proof of transactions; Use of wifi for daily activities; and the use of the website to help the performance of each division in the company.

Based on the results of observations and analyzes that have been carried out, several problems faced by the company were found.

Table I. Organizational Issues

Activity	Issue
Marketing Division	Marketing is only done with sales, sales will go to customers directly and offer their products.
Accounting Division	Making financial reports is done using Microsoft Office and the Accounting division must check the evidence of transactions to each division which takes a lot of time, and financial reports are stored in two forms, softcopy and hardcopy.
Finance Division	All purchases and sales transactions made by the Finance department will be recorded using the Microsoft Office.
Export & Import Division	Difficulty in recording large quantities of goods data and

	making road letters that are printed first and then handwritten to be given to the courier when sending goods to customers, where the letter will be stored in physical form as proof that the goods have been sent.
Purchasing Division	Recording customer and supplier data using Microsoft Office; and recording of orders for goods from customers as well as to suppliers that are still being made using books.
Staffing	There is no division specifically tasked with handling employee data so that so far it is the manager in charge of managing employees in their division.

From these existing problems, a solution is made in the form of the next table as follows.

Table II. Information system solutions

Activity	Solution
Marketing Division	Making media for online marketing, such as a website that can be accessed by potential customers and contains information on goods sold along with telephone numbers that can be contacted.
Accounting Division	Creating a system that can present financial reports quickly and with limited access rights, and the system is integrated in each division, making it easier to check evidence.
Finance Division	Creation of a system for recording transactions.
Export & Import Division	Making a system that helps manage goods data in the company and helps make travel documents.
Purchasing Division	Creation of a system that helps manage customer and supplier data, and can help record ordered items.
Staffing	The creation of an HRD division that specifically handles employees and a system that helps manage employee data.

C. Architecture Vision

At this stage a SWOT analysis is carried out which focuses on four elements, namely strengths, weaknesses, opportunities and threats, which allows companies to identify their strengths, weaknesses and external opportunities and threats. which can influence strategies, actions or initiatives. Knowing these positive and negative elements can help companies make better decisions and strategies that are likely to succeed. The following is a SWOT analysis after the company uses or implements the TOGAF framework.

The strengths that exist in the company include:

- The company PT Dirgamitra Pacific has been established since 1991 so that the company already has regular customers and suppliers who have worked together.
- There is already an organizational structure that makes business processes run well because every employee already knows what their duties and responsibilities are.
- The company already has a website that helps internal activities and also assists in marketing activities.
- The website owned by PT Dirgamitra Pacific is integrated with each other so that it helps cooperation between divisions in the company.

The weaknesses that the company has are as follows:
- The company is engaged in distributors so it does not produce, therefore when the stock of goods is empty, the company must wait for goods from the supplier.here is no system that helps the company's operational activities so that work becomes a little hindered.
- It takes a lot of money for companies to use technology, such as paying rent for technology every year.
- Limited IT staff tasked with maintaining and maintaining the system

For opportunities that come from outside are:

- Have good cooperation with customers and suppliers so that the business continues to run well.
- The need for car repair tends to be stable because a vehicle must always be maintained.
- Marketing using online media allows companies to get customers with a wider reach than before.

Possible threats are:
- Uncertain economic conditions and may have an impact on production prices.
- Possible emergence of competitors in the same field.

In SWOT, in addition to the four elements of strengths, weaknesses, opportunities and threats, there are SO, WO, ST and WT strategies that are used to help companies prepare a good strategy. First there is SO which is a strategy by combining strengths and opportunities:
- Maintain good relationships with customers and suppliers so that the business can continue to run.
- Increase the variety of spare parts sold based on customer demand and market conditions.
- Increase the stock of items purchased by the customer the most.

The second is WO, which is a strategy that minimizes your weaknesses to take advantage of opportunities:
- Have alternative suppliers
- Adding IT staff and conducting training on basic system maintenance to other employees.

Furthermore, there is ST, which is a strategy that utilizes strength to overcome threats:
- Determine flexible prices or can do a bundling sales system.
- Improving the quality of the products sold and the quality of service.

Lastly is WT, a strategy that minimizes weaknesses and avoids threats: Creating new business strategies to help companies perform better.

D. Business Architecture

In the requirements management phase, it is known that there are problems in each division in the company so that an application solution is made that will be designed to help solve every problem in each of these divisions.

Table III. Business Architecture Solutions

Problem	Application Solution
Marketing activities that only rely on sales and management of customer data and customer order transactions.	PT Dirgamitra Pacific marketing information system.
Making financial reports is done using Microsoft Office and the process of checking proof of transactions to each division which takes a long time and storage of financial statements.	PT Dirgamitra Pacific financial information system.
Storage of transaction evidence in physical form and manual recording.	PT Dirgamitra Pacific financial information system.
Management of goods data and making travel documents manually	PT Dirgamitra Pacific inventory information system.
Management of supplier data, as well as recording of order data to suppliers.	PT Dirgamitra Pacific purchasing information system.
Management of employee data is still not good.	PT Dirgamitra Pacific staffing information system.

In the marketing division there are additional tasks, namely managing customer data and customer orders, which previously were the responsibility of the purchasing division. It is proposed to transfer the tasks held by the purchasing division to the marketing division because the marketing division is the person who meets and interacts with customers.

To overcome the problems that exist in the company, the authors propose a website to help marketing the operational activities of each division in the company. The website can later be accessed by all parties, customers and employees but with different access rights. Customers can see the products sold by the company without the need to register or login, but if they want to buy, they are required to register and login. For the employees themselves, after logging in they will go to the page according to their respective duties.

E. Information System Architecture

At this stage, the application architecture modeling will be carried out, describing the interactions between the actors on the system that will be designed to support business processes at PT Dirgamitra Pacific.
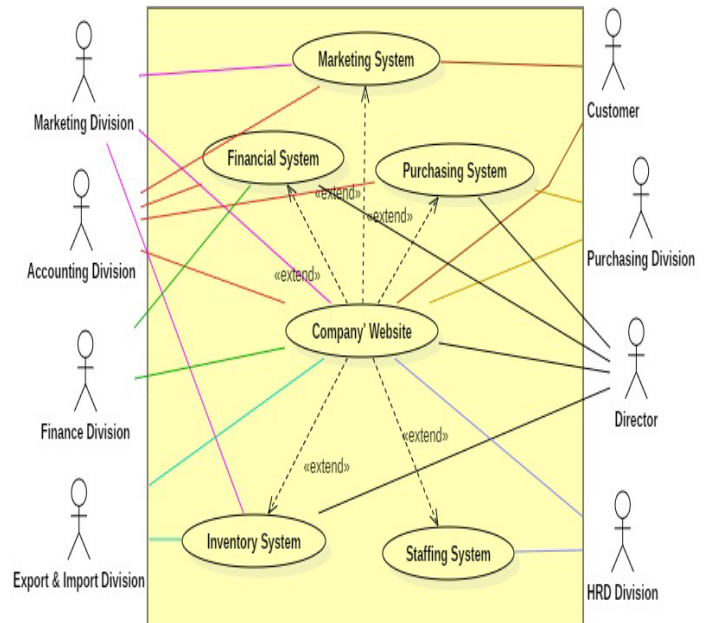

Fig. 3. System-wide use cases

There are 8 actors who will interact with the website, on the website there are six systems that will help the actors work. First, a marketing system that can be accessed by customers to view products and order them, then the marketing division can do product marketing, provide information about products sold, manage customer data and customer order data. Second, the financial system that can be accessed by the Accounting and Finance divisions, this financial system will later be able to help both divisions to record all transactions that occur and produce financial reports.

Furthermore, there is a purchasing system that can be accessed by the Purchasing section to assist in recording data regarding product purchases and data on suppliers who work with them. Then the personnel system used by the HRD division to manage employee data and finally the Inventory system used by the Export & Import division to manage goods data in the company to make work easier.

Accounting Managers can access several existing systems to carry out the checking process, as well as directors who can access several systems. The <<extend>> line in the image means that in a process there are other process options, such as on the Company's Website which is connected to all existing systems with this line, which means that on the website there are several other systems.

In designing the information system of PT Dirgamitra Pacific, there will be several processes that occur and are outlined in the following modules:
1) Registration process
   • Customers who do not have an account will do registration process themselves by entering some personal data.
   • Employee data will be entered by the HRD division.
   • Customer data will be entered by marketing division.
   • Supplier data will be entered by purchasing division.
   • Goods data will be entered by export & import division.
2) Login process
   • Before making a purchase, customers will be directed to log in first.

• All employees are required to log in with their username and password before carrying out their duties.

3) Product input process

The marketing division will be in charge of carrying out the input process on the marketing system website so that customers can know what products are available in the company.

4) Purchase process

The marketing department will be in charge of recording purchases of goods from customers, both online and offline.

5) Product ordering process

The purchasing division will be in charge of placing orders from suppliers and recording them.

6) Process payment transactions

Payment processing from customers can be done via bank transfer when the goods arrive and payments to suppliers are made via bank transfer.

7) Product recording process

Goods that have arrived from the supplier will be received and recorded by the export & import division.

8) Product delivery process

The export & import division will be in charge of the product delivery process to the customer by first making a pass as proof.

9) Report generation process

The accounting department no longer needs to make reports manually because the system will display them automatically according to the transaction data that has been entered by the financial section previously.
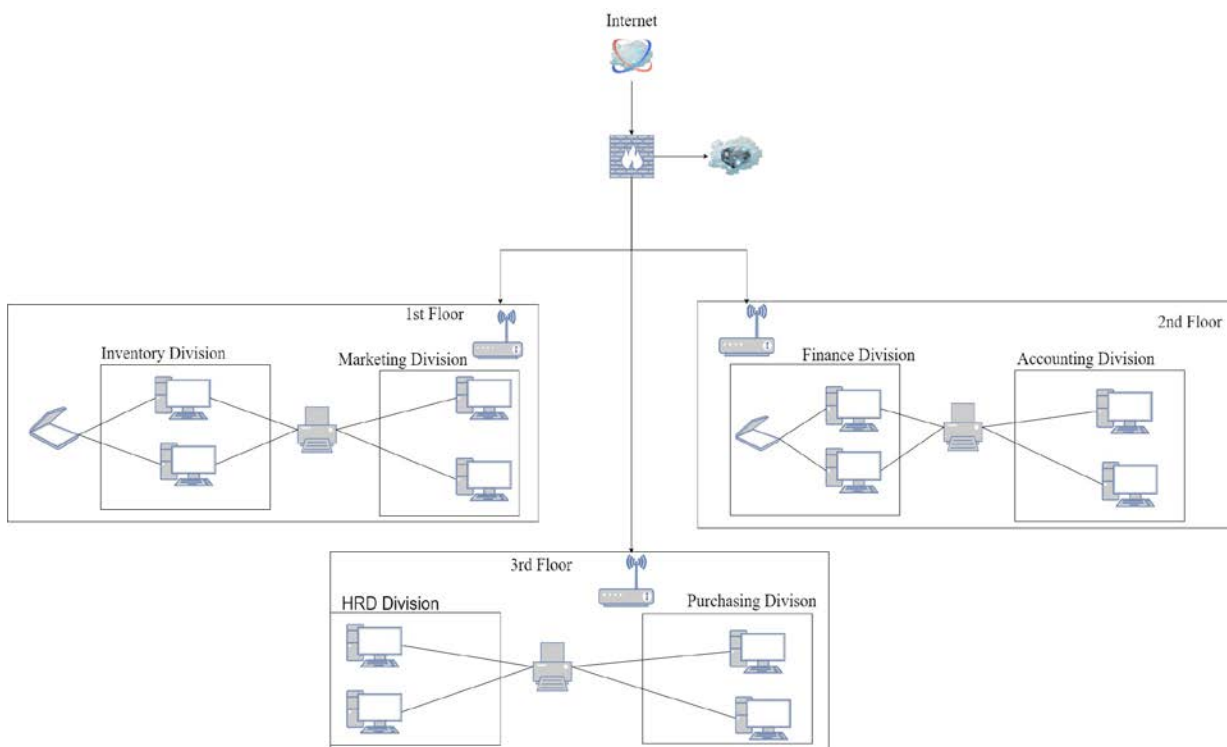
F. Technology Architecture

Fig. 4. Proposed network configuration

The author proposes the addition of 2 scanners, each of which is used in the inventory division to store proof of goods arrived and the financial division to store proof of payment for all company financial transactions. In addition, because previously there was no HRD division, the division was added one floor with the purchasing division. Also added is a cloud server that functions to store data and help send and receive data.

Because previously important data was usually stored in hardcopy and softcopy on a computer, the authors propose to use a cloud server as data backup, so that important company data is stored safely and can be accessed easily at any time. The choice of cloud server compared to physical server is because data storage and computing power have been provided directly by the system automatically according to company needs, saving time compared to creating a server from scratch, and making it easier for users to access it anywhere as long as they are connected to the internet.

For the technology platform on the client interface, which is the client side view using the website and each employee can access the system according to their respective needs. Then there is the Presentation, which means that users can access the website using a web browser and connect to the internet network and this application is planned to be built based on the web using the PHP programming language, and existing data will be retrieved from the database.

G. Opportunities and Solution

In this section, a gap analysis is carried out to explain what components can be retained or removed from the current system in PT Dirgamitra Pasific, and what components are replaced or added with new components accordingly with the proposed system.

In the GAP analysis of business architecture in the marketing division, the process of distributing product information and communication about products is still maintained where the marketing division carries out marketing activities online using the website and offline with

sales. For customer transaction history which was previously stored in the form of a note file, it is now replaced with customer transaction history online. Customers no longer need to see receipts and go directly to the website. Recording orders from customers, and managing customer data also experienced changes. The newly added process is placing the order online using the help of the website.

For the purchasing division, recording orders to suppliers to managing supplier data has been replaced because now the company is proposed to use a website so that data can be stored more securely.

In the export & import division, warehouse staff in charge of receiving goods can directly check using the website. The website will help to automatically print the travel document and it can be used immediately. In addition, the goods receipt from the supplier, which was previously stored in physical form, can now be stored on the website by scanning it first.

In the HRD division, the process of recruiting new employees will still be carried out, while the management of employee data and attendance data is carried out by replacing because now the proposed system uses a website so that storage becomes more organized and safer. In the finance division, most of the changes are the components of the previous system, for example in recording all transactions that occur in the company such as purchase transactions, sales, payment of employee salaries and payments for office needs which were previously made by input into Excel but now with direct input on the website and will be automatically saved. For storage of evidence, it is replaced by scanning which is then stored on the website.

Finally, in the Accounting division, the process of making company financial reports was changed because the proposed system would later be able to generate automatic financial reports from transaction data that had been previously entered by the Finance division. The process of checking proof of transactions will also be changed, where the Accounting division no longer has to visit each division but can view the evidence through the website. The financial statements will later be stored on the website and can be seen by certain people who are given access rights.

After previously doing GAP analysis based on business architecture, for GAP analysis based on application architecture, a change was made in the 2010 Microsoft Office application to Microsoft Office 365. The addition of new components to the company is the PT Dirgamitra Pacific website, marketing system, purchasing system, inventory system, financial system, and staffing system.
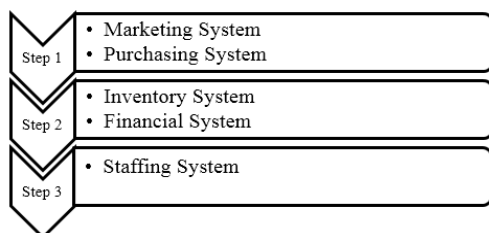
H. Migration Planning

Fig. 5. Implementation Roadmap

At this stage, a sequence is carried out regarding the implementation of the proposed system at PT Dirgamitra

Pacific, describing which system should be implemented first in the company.

From the picture above, it is known that the making of the proposed system will be divided into three stages, which first is the Marketing System with the Purchasing System, then the second stage is the Inventory System with the Financial System, and the third stage is the Personnel System.

The first stage that will be carried out in 2021 is the marketing system, the marketing system is included in the first order, because it is a medium for connecting all existing systems and is useful for finding customers and disseminating information about companies with a wider scope and then the purchasing system because it is related with a marketing system, where customer data who place online orders can be entered automatically.

The second stage is planned to take place in 2022, and the Inventory System is in the third place so that it can help manage data on incoming and outgoing goods. Furthermore, the Financial System, whose data is related to purchasing systems and inventory systems. The last stage is planned for 2023 and the HRD system is entered as the last order of managing the data of all employees in the company.

V. CONCLUSION AND SUGGESTION

Based on the results of the discussion that has been described, it appears that PT Dirgamitra Pacific has not optimally utilized the use of technology and information systems, the company uses Microsoft Office and e-mail as tools to carry out operational activities so that operational activities become a bit constrained, where to manage data and compile reports. Finance takes a relatively long time, coupled with important company documents that are prone to damage and loss because they are stored in hardcopy and softcopy on a computer. Therefore, an enterprise architecture design was made using TOGAF ADM with 8 phases (Preliminary Phase, Requirement Management, Architecture Vision, Business Architecture, Information System Architecture, Technology Architecture, Opportunities and Solutions and Migration Planning) and proposed making a website that is not only accessible by employees but also for customers. The information provided by the website is limited according to the access rights owned, so that no one can access or own important company data.

The design of enterprise architecture in this study has only reached the Migration Planning stage, and it is hoped that in the future it can be continued using the stages of Implementation of Governance and Architecture Change Management so that the research becomes more complete, besides that it is also necessary to add IT staff to carry out maintenance and add HRD division to help manage data. regarding employees.

REFERENCES

[1] D. Y. Bernanda, M. F. Isputrawan, Y. Krishartanto, Y. P. Setiawan, and D. Haeraini, "Perancangan Enterprise Architecture Menggunakan Zachman Framework (Study Case: Perusahaan Farmasi)," *J. Inf. Syst. Hosp. Technol.*, vol. 2, no. 01, pp. 1–8, 2020, doi: 10.37823/insight.v2i01.76.

[2] N. Mutiara, R. Andreswari, and R. Hanafi, "Analisis Dan Perancangan Enterprise Architecture Direktorat Metrologi Pada Menggunakan Framework Togaf Adm," *J. Rekayasa Sist. Ind.*, vol. 4, pp. 106–114, 2017.

[3] Valentinus and N. Legowo, "Enterprise architecture design using togaf framework in CV Widjojo," *Int. J. Adv. Sci. Technol.*, vol. 29, no. 5, pp. 5137–5151, 2020.

[4] L. Davinci and J. F. Andry, "Redesign the Heavy Equipment Company'S Business Processes Based on Eap Using the Zachman Framework," *Int. J. Open Inf. Technol.*, vol. 7, no. 12, pp. 70–76, 2019.

[5] H. Hartono, R. Meylovsky, and J. F. Andry, "Arsitektur Enterprise Pada Bmkg Dengan Framework Togaf Adm," *Infotech J. Technol. Inf.*, vol. 6, no. 2, pp. 63–68, 2020, doi: 10.37365/jti.v6i2.92.

[6] V. Soraya and W. S. Sari, "Perancangan Enterprise Architecture Sistem Informasi dengan Menggunakan Framework TOGAF ADM pada CV. Garam Cemerlang," *JOINS (Journal Inf. Syst.*, vol. 4, no. 2, pp. 148–156, 2019, doi: 10.33633/joins.v4i2.3054.

[7] A. Gormantara and A. W. R. Emanuel, "Enterprise Architecture Planning Using TOGAF-ADM at Scoob Telur Company," *INTENSIF J. Ilm. Penelit. dan Penerapan Teknol. Sist. Inf.*, vol. 4, no. 1, pp. 38–50, 2020, doi: 10.29407/intensif.v4i1.13197.

[8] F. S. Lee, A. Chakir, R. Nathanael, and J. F. Andry, "Architecture information system in electrical distribution company using TOGAF," *Int. J. Adv. Trends Comput. Sci. Eng.*, vol. 9, no. 5, pp. 7149–7156, 2020, doi: 10.30534/ijatcse/2020/38952020.

[9] A. H. Fikri, W. Purnomo, and W. H. N. Putra, "Perancangan Enterprise Architecture Menggunakan TOGAF ADM pada PT. Hafintech Prima Mandiri," *J. Pengemb. Teknol. Inf. dan Ilmu Komput.*, vol. 4, no. 7, pp. 2032–2042, 2020.

[10] A. Rachmanto and M. R. Fachrizal, "Perancangan Enterprise Architecture dengan Framework TOGAF ADM Pada Rumah Sakit Umum di Cimahi," *J. Teknol. dan Inf.*, vol. 8, no. 2, 2018, doi: 10.34010/jati.v8i2.1037.

[11] L. Retnawati, "Perancangan Enterprise Architecture Menggunakan TOGAF di Universitas ABC," *J. IPTEK*, vol. 22, pp. 13–20, 2018.

[12] R. Irfanto and J. Fernandes Andry, "Perancangan Enterprise Architecture Menggunakan Zachman Framework (Studi Kasus: PT.VIVAMAS ADIPRATAMA)," *Semin. Nas. Sains dan Teknol. 2017*, no. November, pp. 1–2, 2017.

[13] F. A. Fajri, F. Zamzami, and H. O. Siregar, "Enterprise Architecture Modeling of Financial Information Systems Using Adapted Zachman Framework," *J. Akunt. dan Bisnis*, vol. 20, no. 1, pp. 117–131, 2020.

[14] J. L.- Antouw and J. F. Andry, "Perancangan Enterprise Architecture Pada Pt.Gadingputra Samudra Menggunakan Framework Togaf Adm," *J. Teknoinfo*, vol. 14, no. 2, p. 71, 2020, doi: 10.33365/jti.v14i2.642.

[15] D. Y. Bernanda, K. Christianto, A. Chandra, and A. Pradipta, "Design enterprise architecture in forwarding company using togaf method," *Int. J. Open Inf. Technol.*, vol. 8, no. 8, pp. 79–83, 2020.

[16] S. Lolo, E. R. Kaburuan, and N. Legowo, "Analysis of enterprise architecture using the togaf framework in educational services," *Int. J. Adv. Sci. Technol.*, vol. 29, no. 5, pp. 3386–3400, 2020, [Online]. Available: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85085012189&partnerID=40&md5=a823d8d7ba27e72e0f4bc4b8fdd74060.

[17] A. K. Nalendra, W. W. Winarno, and A. Sunyoto, "Pemodelan Arsitektur Enterprise dengan TOGAF pada SMK Bhakti Mulia Pare," *J. Ekon. dan Tek. Inform.*, vol. 5, no. 1, pp. 1–11, 2016.

Delly Vera is a student majoring in information systems at Bunda Mulia University, Jakarta, Indonesia. (email: dellyveha@gmail.com)

Devi Yurisca Bernanda is a Senior lecturer in Department of Information System, Faculty of Technology and Design, Bunda Mulia University, Jakarta, Indonesia. (email: devi.yurisca07@gmail.com)