JINAV: Journal of Information and Visualization *ISSN: 2746-1440 (online)*
Vol. 5 No. 1 (2024)
https://doi.org/10.35877/454RI.jinav2506

The IS/IT Strategy Planning Through Ward and Peppard Method In Automotive Spareparts Company

Steven Immanuel Suryana & Charitas Fibriani*

Faculty of Information Technology, Universitas Kristen Satya Wacana, Salatiga, Indonesia

Abstract

This research aims to develop an IS/IT strategy so that system implementation in carrying out the company's business processes becomes more effective and efficient. The method used in this research is the Ward and Peppard method, including analyses of Value Chain, SWOT, PEST, IS/IT Internal and External Environmental with McFarlan Strategic Grid, as well as System recommendations in the form of a framework and user interface of system recommendations based on Mc Farlan Strategic Grids implementation. The results of this research are several suggestions for developing existing systems, new frameworks if needed, as well as Users Interfaces from system recommendations. It is expected that this recommendation can be a solution for companies in overcoming the IS/IT related problems they face.

Keywords: Mc Farlan Strategic Grid, PEST, Ward and Peppard, SWOT, User Interfaces, Value Chain.

Received: 17 January 2024 Revised: 14 April 2024 Accepted: 1 May 2024

1. Introduction

Nowadays, rapid progress in IS/IT has increased the intense competition in the business world, especially now that technology can be considered to be a basic ingredient for supporting society's work as well as a daily (Faizal & Chernovita, 2022; Riset et al., n.d.)The development of organizational or company information systems supported by the use of information technology become an important strategy in increasing competitive capabilities (Septiana, 2017). Many companies or organizations have used and utilized IS/IT to support their business activities and processes (Meitarice et al., 2022; Nabena & Chernovita, 2022; Nugraha & Manuputty, 2022). Since the implementation of IS/IT in the implementation of business activities can speed up and simplify business operations to increase company excellence (Andry et al., 2023; Meitarice et al., 2022; Wijanarko, 2022). Toko Agus Motor is a company that focuses on providing automotive parts. This company is located in a strategic location in Central Java. In its business, Agus Motor Store has the best service and quality products as well as several goods with guarantees, thereby attracting many regular customers and partners both inside and outside the area. Spare parts supply companies usually face many problems in the inventory section because there are many types of spare parts, which make it difficult for some employees to memorize them. Therefore, Agus Motor Store has created a system to simplify its business processes, particularly in the inventory section.

Based on the results of direct interviews with the owner of the Agus Motor Shop, who is one of the users of the company's system and handles the process of buying and selling goods, it is known that the Agus Motor Shop has implemented SI/IT quite well. However, there are still obstacles found in several processes, such as in the section for inputting and searching for item names. There are still minimal important features and some bugs because the system currently used is a new system that was created and the system still needs to be well-developed and updated in the future so that it can be used more efficiently and speed up business processes by follow future IS/IT developments. The strategic design of the information system at the Agus Motor Store will use the Ward and Pepperd method. IS /IT analysis utilizes data processing methods that will be applied, including: Value Chain, SWOT Analysis, PEST, and Mc Farlan Strategic Grid Analysis with output in the form of a User System interface. The strategic design of this information system can be used as a reference for future system development,

* Corresponding author.
E-mail address: charitas.fibriani@uksw.edu

Research on Information Systems Strategic Planning using the Ward and Peppard method has already conducted, such as the research on Surabaya Stores. This research aims to explore the information systems strategic planning approach using Ward and Pepperd method. This method combines in-depth analysis of the business environment and information technology and links them to clear business objectives. This involves identifying current information technology trends, market evaluation, and analyzing the company's internal strengths and weaknesses. This research produces a recommendation for a framework that needs to be developed or a system to be created in order to improve business performance and answer solutions to the uneven implementation of IS/IT in companies (Gazella et al., 2016)The method used is Ward and Peppard analysis with SWOT analysis and Five Forces Porter analysis. Then, for the results, it uses Mc Farlan Strategic Grid for application portfolio mapping (Michelle & Fritz Wijaya, 2020).

Other research on supermarkets using the Ward and Peppard method and SWOT analysis techniques, Value Chain analysis, Five Forces Porter, and McFarlan Strategic Grids. Research on information systems strategic planning using Ward and Peppard method is an effort to explore and analyze various aspects related to the development of information systems in an organization. This method refers to the framework developed by Ward and Peppard to help organizations formulate effective strategies for managing information technology to support the achievement of business goals. In this research, an in-depth analysis was carried out on various factors that influence information system strategic planning, starting from stakeholder needs and expectations, challenges and opportunities in the business environment, to the availability of required resources. Ward and Peppard method assists the researchers in designing a systematic framework for identifying, analyzing, and evaluating these factors. The results of this research recommend the implementation of warehouse information system applications, vehicle parking security systems, cashier information systems, employee absence systems, and financial information systems, which are prioritized in accordance with Mc Farlan Strategic Grid mapping, and can be applied in the future (Wijaya & Damara, 2020).

This research was conducted at the Agus Motor Shop using the Ward and Peppard Grid with the final result in the form of a User Interface of system recommendations based on Mc Farlan Strategic implementation Grid analysis. This method provides a structured approach with clear stages, starting from understanding the business situation, identifying information needs, formulating strategies, to implementation and evaluation (Ain et al., 2021; Giri Prawiyogi & Solahudin Anwar, 2021; Virginia & Fibriani, 2023). The researchers focused on in-depth analysis of information system architectures that best suit an organization's needs, as well as creating implementation plans that are integrated with the overall business strategy. The strategic planning carried out at this company is expected to have a positive impact to company productivity and efficiency in carrying out business processes, as well as accelerating company performance in the future. Therefore, the implementation of IS/IT in the company becomes more organized and maximized (Nagashi & Rahardja, 2014)The final results of this research are expected to be able to handle difficulties that occur in the input system, searching for item names, and if there are customers negotiating prices. In addition, it is expected that become a foundation for better system improvements at the Agus Motor Shop in the future.

2. Research Methods

2.1. Information Systems Strategic Planning

Strategic planning for IS/IT is the process of identifying a portfolio of computer-based IS applications that will support a company in implementing its business plans and achieving its business goals. IS/IT strategic planning studies the impact of IS/IT on business performance and its contribution to the company in determining strategic steps. Moreover, IS/IT strategic planning also describes various tools, techniques, and organizational structures for use management managing IS/IT strategy in line with business strategy, even exploring new opportunities through the application of innovative technology. Planning Information systems strategy is used to set company or organizational goals in a comprehensive and structured way, thereby providing sustainable excellence in facing competitors or competition with other companies/organizations (Wijaya & Damara, 2020)IS/IT strategic planning also explains various types of tools, methods, and a framework for adapting IS/IT strategies to business practices in finding opportunities for innovative use of technology (Saputra & Tanaamah, 2022)

2.2. Ward And Peppard Method

Ward and Peppard methodological approach begins by evaluating the business situation and IS/IT investments that have been made which are considered less effective, then analyzing the external business situation to increase the company's competitiveness (Frensca Johannis et al., 2019)The selection of Ward and Peppard method in this research

is because the ability to produce IS/IT strategic plans from an internal and external perspective company. The results include business strategies as well as IS/IT and information technology management strategies that can improve company efficiency and performance (Ramdhany, 2019) as presented in Figure 1. IS/IT Strategic Planning:

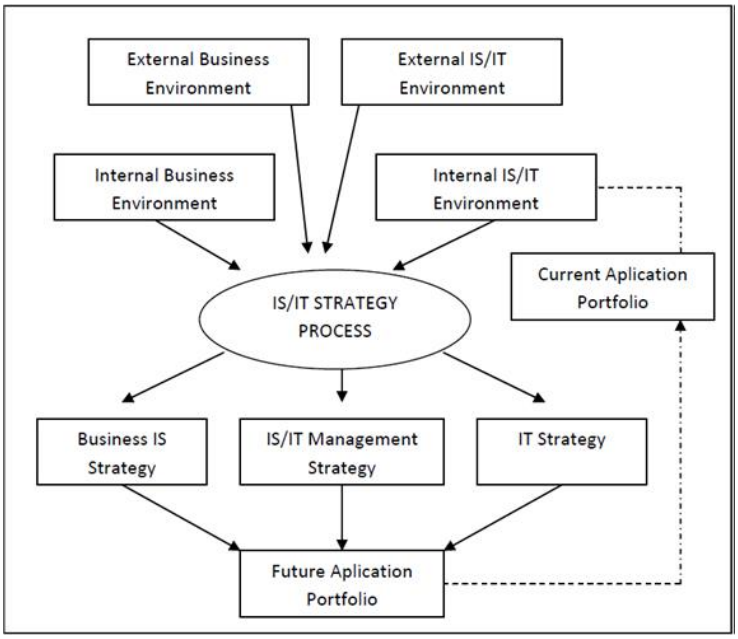

Figure 1. IS/IT Strategic Planning

In this method, there are several stages that must be carried out, such as the input stage and output stages. Input stages consists of several steps. The first step is Internal Business Environment Analysis, where this analysis is used to understand the company's situation in achieving its goals and identify areas that need to be developed. This stage uses of Value Chain analysis, Mc Farlan, and SWOT analysis (Gazella et al., 2016)The second step is External Business Environment Analysis, where this analysis is carried out to find information about IS/IT trends from the internet. This stage uses PEST analysis to understand the company's external business environment (Gazella et al., 2016)The third step is Internal IS/IT Environment Analysis, which involves evaluating all resources, such as systems, workforce, technology, and IS/IT strategy portfolio (Sujana, 2017)The fourth step is the External IS/IT Environmental Analysis, which includes reviewing the current conditions and opportunities for IS/IT at the Agus Motor Store (Sujana, 2017)

Then, the output stage is the result of the analysis at the input stage. Output stages consists of several steps. The first step is the IS Business Strategy, which determines how each division will develop IS/IT to achieve the company's business goals (Wijaya & Damara, 2020)The second step is IT Strategy, which designs business strategies by utilizing IT resources available in the company (Cahyo & Manuputty, 2021)Last, the third step is the IS/IT Management Strategy, which includes the strategy that Agus Motor Store will implement in implementing the company's IS /IT (Cahyo & Manuputty, 2021)

3. Discussion

3.1. Value Chain Analysis

Value Chain Analysis is techniques for describing business workflows. Moreover, Value Chain analysis helps companies to identify innovation opportunities. By understanding customer needs and desires, companies can create new services that can add value to consumers. This opens up opportunities to expand market share and strengthen competitive positions. Value Chain analysis also plays an important role in correlation with business partners. Effective collaboration with partners can improve overall value chain performance. Porter states that the ability to identify specific activities and manage relationships between activities is a source of competitive advantage (Nastiti, 2019)Looking from a work process perspective, Toko Agus Motor can be classified into two parts, namely the main activities and activities that support the running of business processes. The result of the Value Chain analysis at Agus Motor Shop can be seen in Figure 2:

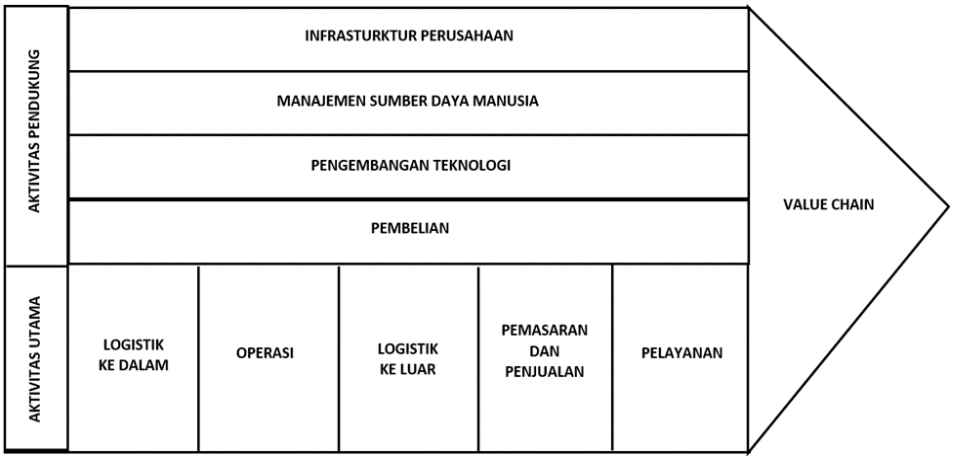

Figure 2. Value Chain Analysis

In the Main Activity, the inward *Logistics* section can place product orders to suppliers, check products according to orders, and check for defective goods. The operations section can tidy up products according to their place, check and record sold goods, and interact with customers. In the Outbound Logistics section can carry out the buying and selling process and make returns or return defective goods. The Marketing and Sales department can provide discounts with large purchases, collaborate, and promote with other traders. Then, the Service section can provide a workshop next to the shop to directly install spare parts, and provide an adequate waiting room.

In the Supporting Activities section of Company Infrastructure, it can discuss store management, planning, and finances. HR Management can carry out recruitment, training, determine wages and compensation, terminate or lay off. Besides, Technology Development can also carry out technological maintenance of hardware and software. At the end, Purchasing process is able to purchase the required shop assets.

3.2. Internal/External Business Environment Analysis

This analysis stage refers to the SWOT analysis *(Strength, Weakness, Opportunity, and Treats)*. SWOT analysis is very useful in strategic planning of information systems because it allows the identification of internal and external factors that can be explained in detail to achieve a systematic approach (Royyana A, 2021)This analysis helps recognize the strengths, weaknesses, existing opportunities, and various threats to the Agus Motor Shop system. The results of the analysis can be seen in Table 1.

SWOT Analysis:

Table 1. SWOT Analysis

Strength	***Weakness***
- Can find out item details - New system that is easy to use - Has a barcode system for goods	- It is difficult to find the name of the item in the system, because of the limited character input for the name in the system, which results in differences in the name of the item. - There are still many bugs in the system - Not all items have received barcodes because of too many items - Difficulty inputting data if someone is negotiating the price of goods
Opportunities	***Threats***
- Add some more modern features - The latest technology to simplify business processes	- Incorrect item data input - There is no SI security yet

Therefore, the Information Systems Strategic Planning can be seen in Table 2. SWOT Mapping as Table 2.

Table 2. SWOT Mapping

S-O Strategic	*WO Strategic*
- Using AI and IoT to make it easier in operating the system	- Perform regular system maintenance
S-T Strategic	***W-T Strategic***
- Perform data checks every day - Back update data regularly	- Archive data in a safe place

3.3. PEST Analysis

PEST analysis (Political, Economic, Social, and Technological) is an important tool in understanding the external environmental conditions that affect a company. Through this analysis, companies can identify key factors that can influence their performance and business strategy. This analysis makes it easier for companies to plan effective strategies in more competitive competition (Ramdhany, 2019)Through PEST analysis, companies can identify opportunities and threats that arise from their external environment. Through a better understanding of these factors, companies can design strategies better, enabling them to anticipate market changes and increase their competitiveness amidst ever-changing business developments.

a) Political Aspect: The political aspect in PEST analysis considers government policies, regulations, political stability, and other political issues that may affect business operations. For example, this company has a business license.

b) Economic Aspects: Economic aspects include several factors, such as economic growth, interest rates, inflation, and market conditions. For example, this company has a very wide market coverage and has collaboration with suppliers.

c) Social Aspect: The social side of PEST analysis considers cultural values, demographics, lifestyle trends, and consumer behavior. For example, this company has *BPJS* and employee welfare benefits.

d) Technological Aspects: Technological aspects refer to technological advances and innovations that can affect industry and business operations. For example, this company carries out regular system maintenance to reduce bugs or server downtime.

3.4. Internal And External Is/It Environment Analysis

a) Analysis of the Internal IS/IT Environment: The implementation of IS/IT at the Agus Motor Store has been running for 70% of the business processes carried out using the system. This is a new system that needs to be provided regular maintenance. So, there are still some bugs and a lack of several important features, especially in inputting, searching for item names, and difficulties if there are buyers negotiating the price of goods, which causes the business process to take a long time as it has to be done manually.

b) Analysis of the IS/IT External Environment: The progress of IS/IT technology in this company is quite good, which makes work easier than before the system existed in this company. The system at this company has been used, but is still lacking in terms of system security. This can cause data leaks due to the large number of users who can use the system and the lack of security features, which is very dangerous for the company.

3.5. Information System Recommendations

Information system recommendations are a strategic step for companies to optimize their operations. These system recommendations can be a powerful tool for companies to increase their efficiency, innovation, and competitiveness in an ever-changing market. The results of the previous analysis can be used as a guide for designing strategies to anticipate threats that may arise in the future. Thus, the author includes application portfolio design as a reference for the next few years. Information System Recommendations can be seen in Table 3. Information System Recommendations as follows:

Table 3. Information System Recommendations

No.	Information System Name	User	Type	Function
1.	SI Goods Inventory	Employee	Application	Functions to *add*/*update*/*delete* stock items, and item details equipped with a search feature based on the filters provided.
2.	SI Data Storage	Employee	OneDrive	Functions to store archived data
3.	Promotional Web	Employee	Website	Serves as a promotional tool

3.6. Application Portfolio

The Application Portfolio has the functions as the output of the IS/IT strategy, which is based on the company's internal and external scope. Therefore, the application portfolio design was carried out using the *McFarlan Strategic Grids* technique. This approach aims to evaluate or map IS applications based on the current situation, future plans, and the application's potential contribution to business operations (Saputra & Tanaamah, 2022)Based on *McFarlan* application mapping, it is known that applications can be classified into four quadrants based on evaluation of their business impact, namely strategic, high potential, key operations, and support. From the results of this mapping, an understanding of the contribution of IS/IT to business can be obtained. The results of this mapping provide an overview of the contribution of an IS application to the company and its future development (Afriyano et al., 2016)

Table 4. Application Portfolio

Strategic	***High Potential***
- SI *Inventory*	- Promotional Web
Key Operations	***Support***
- *OneDrive* - SI Agus Motor	- Microsoft Applications

a) *Strategic*: It is a system that has a very crucial role in future business success. The system contributes to creating and supporting change in the way companies run their business, thereby providing a competitive advantage.
b) *High Potential*: It is an innovative system that has the potential to create profit opportunities in the future. This system promises the possibility of providing significant benefits to companies in the long term.
c) *Key Operation*: Is a system that supports the core operations of an existing business, and helps prevent adverse conditions from occurring. This system helps maintain the company's smooth operations and provides important support for business continuity.
d) *Support*: This is a system that aims to increase business efficiency and management effectiveness. However, these systems do not directly support business processes or provide competitive advantages to companies.

3.7. User Interface

Users Interface (UI) is a very important aspect in the design of a system. It is the meeting point between humans and technology, where users interact with the systems they use. UI includes a wide range of elements, from visual design to user interaction, and aims to make the user experience as easy and efficient as possible. At this stage, the author will provide a UI design for SI Inventory at the Agus Motor Shop.

Figure 3 is the initial display when the user has successfully logged in and displays a form for adding detailed data on new items, which can be done manually or automatically using the camera scan feature. At the top position, there is a search bar for viewing details of existing items.

Figure 4 is an example of adding item data. Item IDs are created automatically according to the item initials and the order of items added to the system, such as HU which means *Head Unit*, and 00001, which means the first item added to the system.

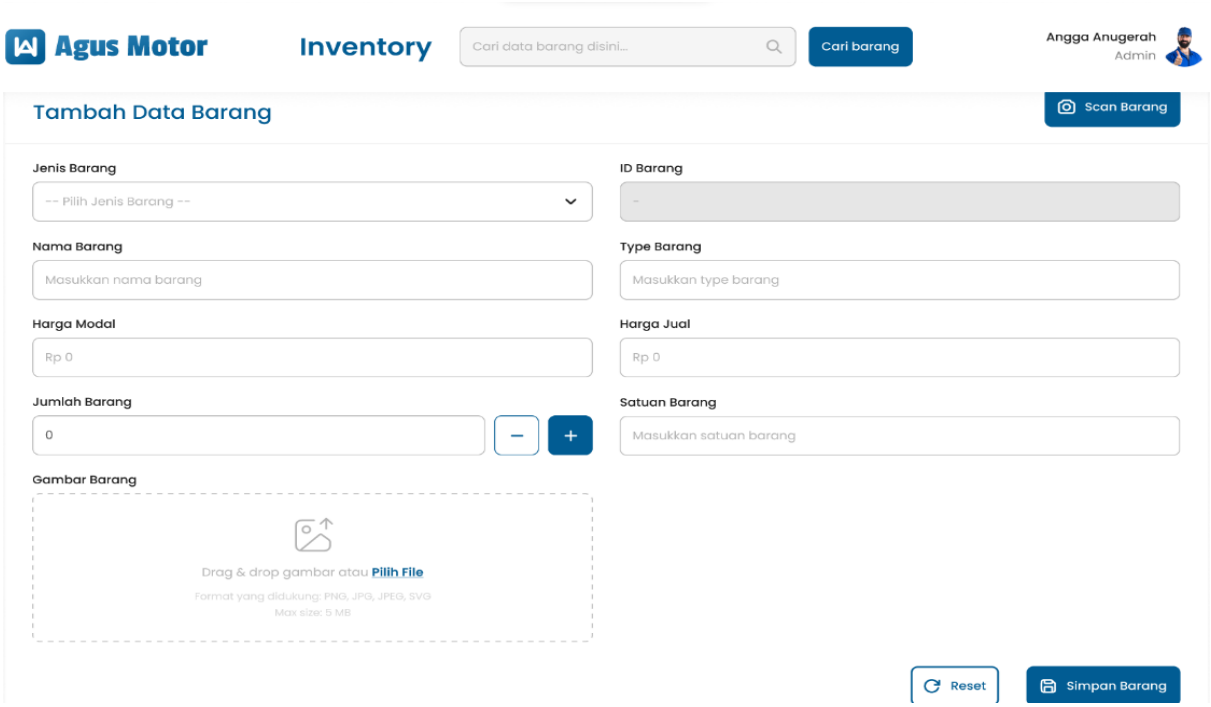

Figure 3. Add Item UI

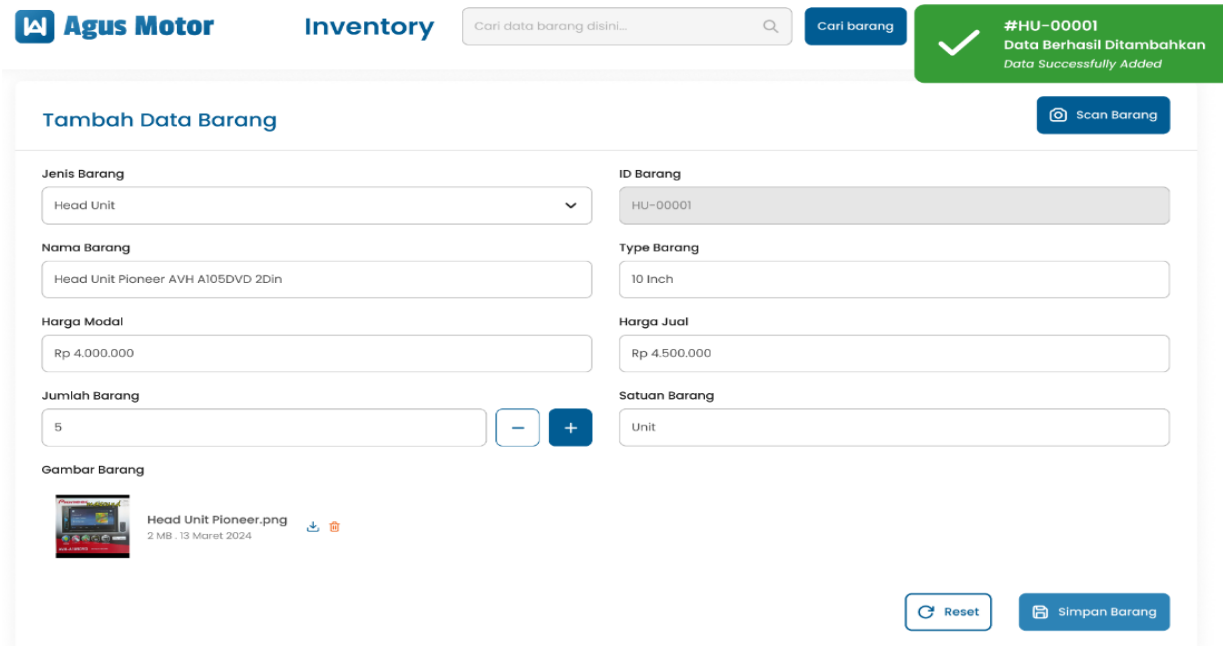

Figure 4. Process of Adding Items

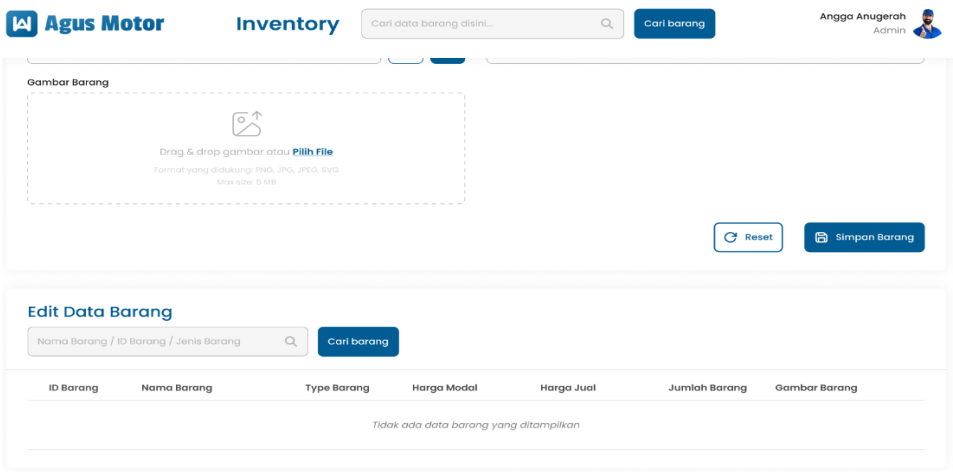

Figure 5. Item of UI Edit

After scrolling at the bottom, there will be a search bar for editing item data, which will appear and can be clicked to edit and delete items as in Figure 5.

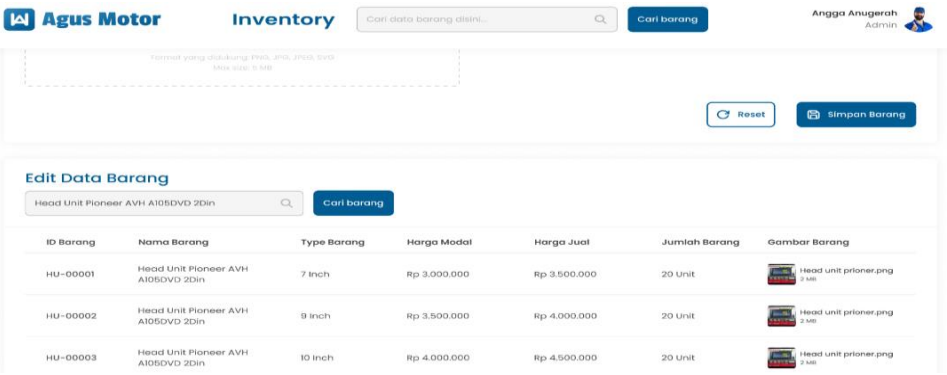

Figure 6. Search for item data to edit the items

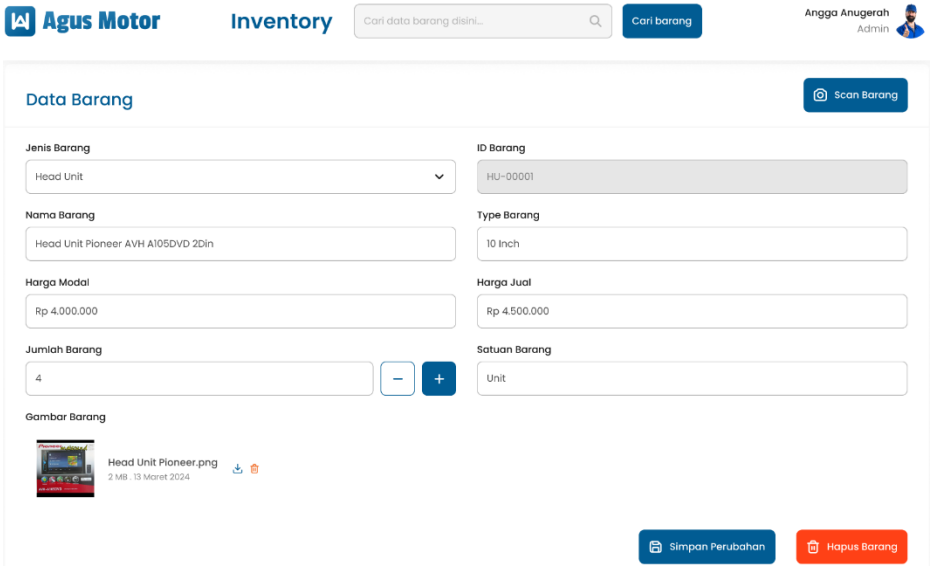

Figure 7. Process of Editing or Deleting Items

Figure 6 and 7 are examples of when the user wants to edit or delete item data by searching for the desired item, then clicking on the item as in Figure 6, and it can immediately edit or delete the item data as in Figure 7.

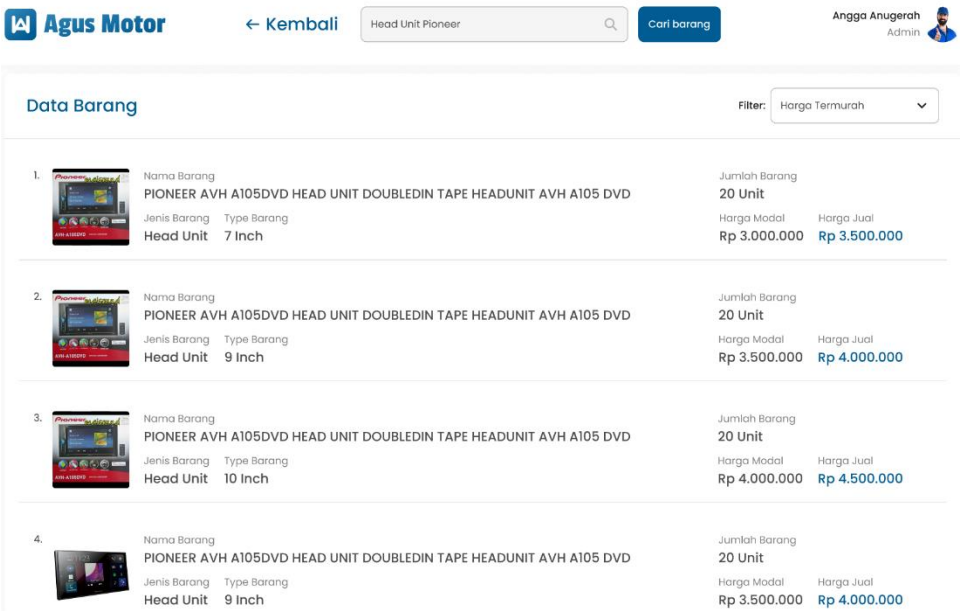

Figure 8. Search Initial Bar

As seen in the Figure 8, after logg-in process, the function is to search for items and their details with the filters available to make the search easier.

Figure 9. Access Features

In Figure 9, there is a security feature that if the user has finished using the application, they can immediately exit the application so that it is not misused. In this case, it means that each user has login access for each respective division.

4. Conclusion

Based on the analysis and discussion in this research, it can be concluded that the application of IS/IT by Toko Agus Motor has not yet reached its maximum level or still not optimal. There are still several shortcomings in the use of IS/IT that need to be corrected and developed in order to help the company progress. Therefore, it is necessary to design strategies in business processes to compete and take advantage of existing opportunities, as well as to improve existing conditions. By implementing a good and mature strategy, the company will be ready to face existing competition and challenges. IS/IT strategic planning at the Agus Motor Store is carried out using the Ward and Pepperd method. The stages in this method include the analyses of Value Chain, SWOT, PEST, as well as internal and external IS/IT of the company using the Mc Farlan Strategic Grids approach. Moreover, Information System recommendations are also included in the form of system prototypes and user designs Interface to help develop company workflow. Through this approach, it is expected that Toko Agus Motor can improve their IS/IT implementation, overcome existing shortcomings, and achieve better progress in supporting company goals.

References

Afriyano, M., Darwiyanto, E., & Wisudiawan, G. A. A. (2016). Perencanaan Strategis Sistem Informasi

Menggunakan Metode Ward and Peppard Pada PT. Grahacipta Bangko Jaya. *Ucv*, *I*(02), 390–392.

Ain, Q., Norlaila, N., Bambang, S. A., Sukoco, S., Ariatmanto, D., & Wijaya, A. M. (2021). Ward and Peppard Method Approach for Strategic Planning Information Systems XYZ Training Center. *JATISI (Jurnal Teknik Informatika Dan Sistem Informasi)*, *8*(4). https://doi.org/10.35957/jatisi.v8i4.1174

Andry, J. F., Chakir, A., Silalahi, R. M. P., Liliana, L., & Clara, M. (2023). IDENTIFICATION OF BUSINESS AND TECHNOLOGY STRATEGIES BASED ON THE WARD PEPPARD-CASSIDY METHOD. *Journal of Theoretical and Applied Information Technology*, *101*(6).

Cahyo, A., & Manuputty, A. D. (2021). Perencanaan Strategi Sistem Informasi Dengan Metode Ward And Peppard di Perusahaan Toko Surabaya cabang Surakarta. *Journal of Information Systems and Informatics*, *3*(2), 365–377. https://doi.org/10.33557/journalisi.v3i2.137

Faizal, M. Y., & Chernovita, H. P. (2022). Strategic Planning of Information Systems with Ward and Peppard Method Case Study of Salatiga City Youth and Sports Office. *Journal of Information Systems and Informatics*, *4*(3). https://doi.org/10.51519/journalisi.v4i3.281

Frensca Johannis, M., Rocky Tanaamah, A., & Prillysca Chernovita, H. (2019). Perencanaan Strategis Sistem Informasi Menggunakan Metode Ward and Peppard (Studi Kasus: Cv.Grafika Prima Mitra Ambon). *Sebatik*, *23*(2), 611–618.

Gazella, D., Darwiyanto, E., & Agung W, G. A. (2016). Perencanaan Strategis Sistem Informasi Pada Industri Manufaktur Menggunakan Metode Ward and Peppard (Studi Kasus : PT. Fin Komodo Teknologi) Information System Strategic Planning In Industrial Manufacturing using Ward and Peppard Method (Case Study : PT. *Jurnal E-Proceeding of Engineering*, *3*(3), 5230–5237.

Giri Prawiyogi, A., & Solahudin Anwar, A. (2021). Stages of Using Ward and Peppard Methods in Information System Strategic Planning. *ADI Journal on Recent Innovation (AJRI)*, *3*(1). https://doi.org/10.34306/ajri.v3i1.535

Meitarice, S., Sari, M., Meidiana, M., Adhawiyah, R., & Febriyanti, V. (2022). Information System Strategic Planning DPMPTSP Riau Province using Ward and Peppard Method. *SISTEMASI*, *11*(3). https://doi.org/10.32520/stmsi.v11i3.2101

Michelle, O., & Fritz Wijaya, A. (2020). Strategic Planning for IS/IT Using Ward and Peppard at Maman Elektronik Sokaraja. *INTENSIF: Jurnal Ilmiah Penelitian Dan Penerapan Teknologi Sistem Informasi*, *4*(2), 272–282. https://doi.org/10.29407/intensif.v4i2.14494

Nabena, D. C. P., & Chernovita, H. P. (2022). Strategic Planning of Information Systems at Leony Frozen Food Agents in Semarang Using Ward and Peppard Methods. *Journal of Information Systems and Informatics*, *4*(1). https://doi.org/10.51519/journalisi.v4i1.229

Nagashi, K., & Rahardja, Y. (2014). Perencanaan Strategis SI/TI Menggunakan Metode Ward And Peppard Pada PT. XYZ Kota Tangerang. *Jurnal Teknik Informatika Dan Sistem Informasi*, *9*(2), 18–25.

Nastiti, P. (2019). Analisis Strategi Bisnis dan SI / TI Pada Perusahaan Rintisan Berbasis Teknologi. *JUTEI (Jurnal Terapan Teknologi Informasi)*, *3*(1), 53–63.

Nugraha, M. C., & Manuputty, A. D. (2022). SI/IT Strategic Planning Using Ward and Peppard Method on Secretariat of Salatiga City Regional People's Representative Council. *Journal of Information Systems and Informatics*, *4*(2). https://doi.org/10.51519/journalisi.v4i2.269

Ramdhany, T. (2019). Perencanaan Strategis Sistem Infromasi di PT. Scudetto International Bearindo Bandung. *Jurnal Komputer Bisnis*, *12*(2), 50–57.

Riset, J., Informasi, S., Kurniawan, R. Y., Fibriani, C., Informasi, S., Kristen, U., Wacana, S., Kristen, U., & Wacana, S. (n.d.). *PERENCANAAN STRATEGI SISTEM INFORMASI DENGAN METODE WARD AND PEPPARD (Studi Kasus : SMP ISLAM SUDIRMAN AMBARAWA)*.

Royyana A. (2021). Strategi transformasi digital pada pt. Kimia farma (persero) tbk. *Journal of Information Systems for Public Health*, *03*(03).

Saputra, J., & Tanaamah, A. R. (2022). Perencanaan Strategis Sistem Informasi dengan Menggunakan Metode Ward

and Peppard pada Swalayan. *Jurnal Sistem Komputer Dan Informatika (JSON)*, *3*(3), 289. https://doi.org/10.30865/json.v3i3.3907

Septiana, Y. (2017). PERENCANAAN STRATEGIS SISTEM INFORMASI DENGAN PENDEKATAN WARD AND PEPPARD MODEL (Studi Kasus: Klinik INTI Garut). *Jurnal Wawasan Ilmiah*, *8*(1), 8–24.

Sujana, N. (2017). Perencanaan Strategis Sistem Informasi Dengan Pendekatan Ward and Peppard. *Tematik*, *4*(1), 68–85. https://doi.org/10.38204/tematik.v4i1.173

Virginia, M. K., & Fibriani, C. (2023). Perencanaan Strategis Sistem Informasi Menggunakan Metode Ward dan Peppard pada Perusahaan Material Konstruksi dan Otomotif. *Progresif: Jurnal Ilmiah …*.

Wijanarko, R. K. (2022). SI/IT STRATEGIC PLANNING USING WARD AND PEPPARD METHODS (CASE STUDY: PT. XY). *JITK (Jurnal Ilmu Pengetahuan Dan Teknologi Komputer)*, *8*(1). https://doi.org/10.33480/jitk.v8i1.2979

Wijaya, A. F., & Damara, V. D. R. (2020). Perencanaan Strategis Si/Ti Pada Document Management Menggunakan Ward and Peppard (Studi Kasus: Pt. Visionet Data International). *Jurnal Bina Komputer*, *2*(1), 33–43. https://doi.org/10.33557/binakomputer.v2i1.796