

IS/IT STRATEGIC PLANNING USING WARD AND PEPPARD METHOD (CASE STUDY : PT.XY)

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Abstract— The role of information systems in the company is an important part to assist in business processes. However, there are still obstacles in the company's business processes that are not in appropriate with the vision and mission as well as the goals of the company. So, a good and appropriate IS/IT strategic planning is needed to be able to help companies compete. The purpose of this research is to analyze the strategic planning of the business information system of PT. XY so that it is expected to solve the problem. This study uses a qualitative method conducted by conducting interviews with one of the employees and literature studies which are then analyzed using the Ward and Peppard method which includes Value Chain Activity analysis, Five Competitive Forces analysis, SWOT analysis, Application Portofolio using McFarlan Strategic Grid and proposal analysis information systems. The final result of this research is a portofolio of information system applications such as a Website-based Inventory Management System. In addition, there is an implementation plan for the proposed information system which is expected to help business processes become more efficient and effective.

Keywords: Information System, Inventory, Strategic Planning, Value Chain Activity, Ward and Peppard.

Intisari— Peranan sistem informasi dalam perusahaan menjadi bagian penting untuk membantu dalam proses bisnis. Namun, masih terdapat kendala pada perusahaan dalam proses bisnis yang kurang sesuai dengan visi dan misi serta tujuan dari perusahaan. Maka, dibutuhkan perencanaan strategis SI/TI yang baik dan tepat untuk dapat membantu perusahaan dalam bersaing. Tujuan dari penelitian ini adalah untuk menganalisis perencanaan strategis sistem informasi bisnis PT. XY sehingga diharapkan dapat mengatasi permasalahan. Penelitian ini menggunakan metode kualitatif yang dilakukan dengan melakukan wawancara terhadap salah satu karyawan dan studi literatur yang kemudian di analisis menggunakan metode Ward and Peppard yang meliputi analisis Value Chain Activity, analisis Five Competitive Forces, analisis SWOT, Application Portofolio menggunakan analisis McFarlan Strategic Grid dan analisis usulan sistem informasi. Hasil akhir dari penelitian ini berupa portofolio aplikasi sistem informasi seperti Sistem Inventory Management berbasis Website. Selain itu, terdapat rencana implementasi usulan sistem informasi yang diharapkan dapat membantu proses bisnis agar menjadi lebih efisien dan efektif.

Kata Kunci: Inventori, Perencanaan Strategis, Sistem Informasi, Value Chain Activity, Ward and Peppard

INTRODUCTION

The improvement in Information Technology gives a significant impact on human beings. As well as the improvement of Information Systems that are so important for industry or organization in business. Even though, there are some industries or organizations that still need some development on their current IS/IT. The nature of information systems in today's organizations coupled with increasing pressure to leverage technology assets has increased the importance of the strategic design

of information systems [1]. So, the application of IS/IT and strategic planning is needed by the industries and organizations to improve their business process and hopefully can win the market share. The application of IS/IT can help industries in decision-making. But, before applying the IS/IT to the business process of the organization, well-prepared IS/IT strategic planning is needed that supports the industry or organizations' vision, mission, and goals [2]. Strategic planning is a process of analysis and assessment that creates a strategy by designing several methods of activities

needed and using resources efficiently [3]. The benefit of Information System Strategic Planning is to be more focused on using various methods of Information System Strategic Planning [4].

PT. XY is the largest manufacturing company engaged in the production and distribution of carbonated soft drinks. In carrying out the business process of PT. XY already uses several information systems, but the company has difficulty managing inventory. In addition, the preparation of the company's financial statements also experienced difficulties. The reason for the disguise of the company's name is because the company asked that for the consideration of publication, the company name should be disguised.

Utilization of the Ward and Peppard framework in the PT. XY is considered suitable for structuring a strategic IS/IT plan because this framework has a comprehensive framework [2]. Through the Ward and Peppard method, which can analyze the internal and external business environment, the internal and external IS/IT environment is expected to assist the company in long-term business processes.

Based on the IS/IT Strategic Planning research using the Ward and Peppard method in 2017 [5] resulted in a strategy that not only focuses on IS/IT but also deals with business processes to a portfolio of applications that can be implemented by the company.

After that, in a study that discussed Information System Strategic Planning Using the Ward and Peppard Method in 2020 [6], PT. Hostingan Awan Indonesia is having difficulty with the output of each division that has not been documented and well-integrated between divisions. And there are still some stakeholders who do not have standard SOPs to provide results that are following what they want to achieve. The purpose of this study is to provide solutions for each main and supporting activity according to each stakeholder in the company.

Then in a study entitled Strategic Planning of Information Systems at the Binterbusih Foundation Semarang Using Ward and Peppard [7] problems were found in the manual management and reporting process. Which then resulted in several SI applications such as SI Scholarship Management, SI Archiving and Assets, SI Finance, and Payroll SI Accounting. Some of these applications will be developed independently gradually over 4 years type of application.

Some of these studies found similarities in the research theory, so it is hoped that it can help PT. XY in improving business performance by the vision and mission as well as the company's goals, such as improving service quality, assisting in decision making, expanding the market, and being able to

generate innovative ideas for the implementation of IS/IT in the future [8].

Thus, with the IS/IT Strategic Planning Research Using the Ward and Peppard Method at the company PT. XY is expected to be able to overcome the problems of inventory management and the preparation of the company's financial statements.

MATERIALS AND METHODS

The methodology is a combination of methods, techniques, and tools used to do something. The purpose of using the methodology in IS/IT strategic planning is to minimize the risk of failure, ensure the involvement of all interested parties and minimize individual dependencies, and put more emphasis on the processes and targets set [9]. This study uses a qualitative method, the data collection process is carried out by interviews and literature studies using the Ward and Peppard method. Ward and Peppard's research method starts from an analysis of business conditions and existing IS/IT conditions which are considered less effective. Next is to analyze external business conditions to increase the competitive advantage of an organization. Then an internal IS/IT analysis is conducted to assess whether the use of IS/IT is appropriate and maximal, then compared with the IS/IT conditions from external organizations. This is necessary. Sometimes the existing IS/IT becomes less useful for the organization because it does not meet business needs [10]. In this methodology, there are several methods of data processing, namely SWOT analysis, Value Chain Activities, Five Competitive Forces, and McFarlan Strategic Grid Analysis. (Figure 1)

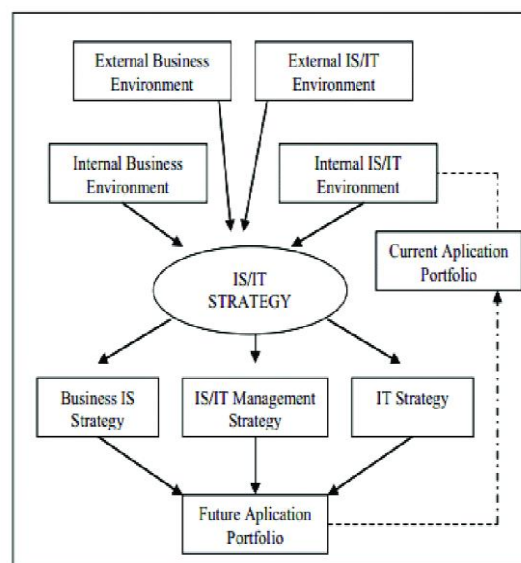


Figure 1. IS/IT Strategic Planning Model [4]

This methodology consists of input stages and output stages. The input stages consist of:

1. Internal Business Environment Analysis, analyzing the current condition of business processes to find appropriate solutions and developments to achieve company goals and be more competitive [11].
2. External Business Environment Analysis, identifying everything that happens outside the company where the Five Competitive Forces method is used in conducting the analysis [11].
3. IS/IT Internal Environmental Analysis. Identify the state of IS/IT in PT. XY by seeing whether it is appropriate and in line with existing business processes [11].
4. IS/IT External Environmental Analysis. Identify trends in the use of technology that is currently developing, both in terms of customers and competitors [11].

While the output stages of IS/IT strategic planning are:

1. Business IS strategy, including how to use IS/IT from the company in achieving business goals [11].
2. IT strategy, including the management of information technology and existing human resources.
3. IS/IT Management Strategy, including IS/IT policies required at PT. XY to maximize its use [11].

From these two stages, a portfolio of future applications will be created, in the form of proposed applications that can be developed to integrate each part and harmonize technological developments with the organization's business development. Furthermore, this portfolio becomes the basis for further system improvement and development [2].

RESULTS AND DISCUSSION

1. Vision and Mission

a. Vision

Every day creates millions of happy moments and share opportunities.

b. Mission

Taking the initiative, being candid and open, focusing on today and the future.

2. Porter's Value Chain Analysis

Value Chain analysis is carried out to map all work processes that occur in the organization into two categories of activities, namely main activities and supporting activities [9]. The following are the results of the Value Chain analysis at PT. XY shown in Figure 2.

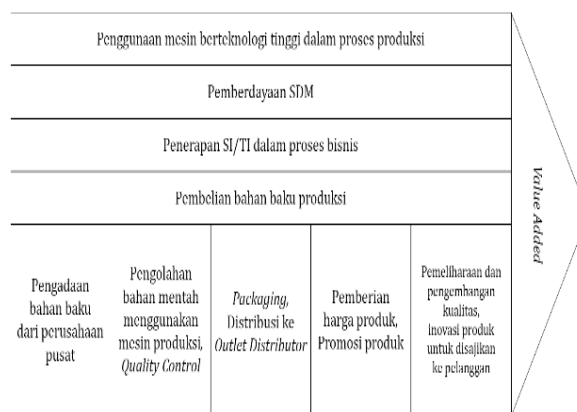


Figure 2. Value Chain Analysis Result

Based on Figure 2, the main activities are obtained, namely the procurement of raw materials from the central company, processing of raw materials using production machines and quality control, packaging and distribution to distributor outlets, product pricing and product promotion, quality maintenance, and development and product innovation to serve customers. Support activities were also obtained, namely the use of high-tech machines in the production process, empowerment of human resources, the use of IS/IT in business processes, and the purchase of production raw materials.

3. Porter's Five Competitive Forces Analysis

This method is used to analyze and anticipate 5 external factors of the company that can be a threat [12]. First, is the threat of new entrants with the renewal of government regulations/rules related to packaged beverage companies, so that they can benefit competitors. Second, bargaining with suppliers is concerned that the company cannot procure raw materials independently so the bargaining power of suppliers is of high value because the company requires raw materials from

suppliers. Third, the bargaining power of customers, PT. XY can suppress the bargaining power of customers according to the standard market price. Fourth, is the threat of substitute products, namely the threat from competitors who produce other packaging and offer lower prices, so that PT. XY should produce a better product. Fifth, is intra-industry competition, namely the threat from large companies that also produce packaged carbonated/soda drinks. (Figure 3)

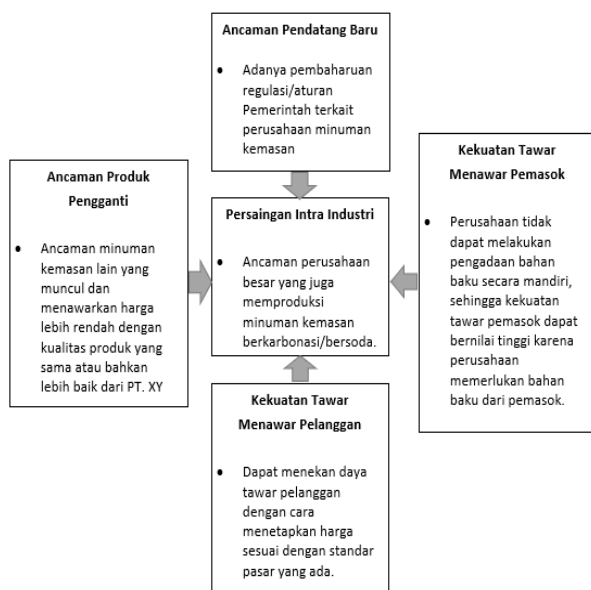


Figure 3. Porter's Five Competitive Forces Analysis

4. SWOT Analysis

SWOT analysis consisting of Strengths, Weaknesses, Opportunities, Threats is used to assess the strengths and weaknesses of the resources owned by the organization or company as well as external opportunities and challenges that will be faced [13]. From the results of interviews conducted, so that the results of the SWOT analysis are shown in Table 1.

Table 1. SWOT Analysis

Strength	Weakness
<ul style="list-style-type: none"> - Distribution data collection system owned by PT. XY can increase sales results through the managed distribution of products to sales outlets. In addition, this system can monitor the distribution process so that the distribution of products can be evenly distributed. 	<ul style="list-style-type: none"> - It is necessary to maintain existing systems and tools regularly to avoid unwanted things from happening.
<ul style="list-style-type: none"> - There is a good Quality Control system to ensure 	

that the products to be distributed to consumers are the best products.

Opportunity	Threat
<ul style="list-style-type: none"> - Consumers are facilitated to get products so that sales results increase. - Consumers are satisfied with good quality products. 	<ul style="list-style-type: none"> - Competitors have a similar system, or even better than the system owned by PT. XY.

5. McFarlan Strategic Grid Analysis Application Portofolio

McFarlan Strategic Grid Analysis aims to analyze an application or information system in an organizational operation based on current conditions, planned conditions, and applications that are considered potential to support the organization's operational business [6]. McFarlan analysis is divided into four quadrants, namely strategic, high potential, key operational, and support. Below are the results of the analysis of the mapping of information systems that currently exist at PT. XY, shown in Table 2.

Table 2. McFarlan Strategic Grid Analysis

STRATEGIC	HIGH POTENTIAL
<ul style="list-style-type: none"> - Article Master Feature for managing company product master data - Order Entry feature to record sales transaction data 	<ul style="list-style-type: none"> - Management Support System consisting of Company Dashboard, Hyperion Essbase, and SQL Server Reporting Service - Oracle Database Usage
KEY OPERATIONAL	SUPPORT
	<ul style="list-style-type: none"> - Email - Microsoft SQL Server Reporting Service for monitoring dan controlling

6. Information System Recommendation

From the results of the analysis of the system owned by PT. XY, obtained a proposed information system that can help and improve the work of the existing system. The following are the results of the proposed information system shown in Table 3.

Table 3. Information System Recommendation

Information System Recommendation	User	Application Type
Sistem <i>Inventory Management</i>	All Employees	Web
Sistem <i>Sales Accounting & Account Receivable</i>	Sales and Marketing	Web

7. Application Portofolio

Then from the results of the proposed information system that produces an Inventory Management System and a Sales Accounting & Account Receivable System, it will be mapped into the McFarlan Strategic Grid which aims to find information systems used in the preparation of application development proposals to produce IS/IT strategic designs for the future [14], application portfolio mapping is shown in Table 4.

Table 4. Application Portofolio Mapping in McFarlan Strategic Grid

STRATEGIC	HIGHT POTENTIAL
KEY OPERATIONAL	SUPPORT
- Inventory Management System	
- <i>Sales Accounting & Account Receivable System</i>	

8. GAP Analysis

In the gap analysis, several existing information systems need to be upgraded (upgraded), deleted (delete), and planned (planning) for updates to suit the expected IS/IT conditions. The following is the result of the gap analysis at PT. XY, shown in Table 5.

Table 5. GAP Analysis

Usulan Sistem Informasi	Upgrade	Delete	Planning
Article Master Feature	✓		
Order Entry Feature	✓		
Sistem <i>Inventory Management</i>			✓
Sistem <i>Sales Accounting & Account Receivable</i>			✓
<i>Management Support System</i>	✓		

Oracle Database	✓
Email	✓
Microsoft SQL Server Reporting Service	✓

9. Information System Recommendation Implementation Planning

The implementation plan is prepared according to the results of the proposed information system that has been made. The implementation plan must also take into account the funds and time the company has, to implement the proposed information system [15]. (Table 6)

Table 6. Implementation Planning Timeline

IS/IT Recommendation	2022	2023	2024
Sistem <i>Inventory Management</i>			
Sistem <i>Sales Accounting & Account Receivable</i>			

CONCLUSION

Based on the results of research and analysis conducted at PT. XY produces application portfolio recommendations in the form of an Inventory Management System and a Sales Accounting & Account Receivable System. This Inventory Management System is a company asset management system designed to assist companies in managing inventory automatically. And for the Sales Accounting & Account Receivable System, is a system for compiling financial reports as a whole. With the implementation of this system, it is hoped that in the future inventory management and financial reports at PT. XY will be more efficient and effective in supporting the entire distribution process, production, and quality of goods owned by the company.

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