Strategic Planning of Information Systems at Leony Frozen Food Agents in Semarang Using Ward and Peppard Methods

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Abstrak

Leony Frozen Food is a micro (small and medium) company that sells food in a frozen and cold temperature state located in Semarang. Leony Frozen Food still uses manual methods in carrying out its business process activities, and one example is doing bookkeeping. Leony Frozen Food does bookkeep still manually recorded in books and moved in the Android application, namely Cash Books. Therefore, IS/IT strategic planning is needed following the needs and current conditions of the company. This research aims to improve effectiveness and efficiency in carrying out business processes and providing solutions to problems in Leony Frozen Food. This study used data collection methods by interviewing company owners and direct observation to Leony Frozen Food. The methods used to conduct SI/IT strategic planning in this study used the Ward and Peppard methods, which included internal and external analysis of the company using Value Chain analysis, SWOT analysis, Porter's Five Forces analysis, and producing output in the form of IS/IT application proposals mapped using the McFarlan Strategic Grid. The results of IS/IT strategic planning are implemented in the next four years.

Keywords: Strategic Planning, Information Systems, Ward and Peppard

1. INTRODUCTION

Today, the advancement of information technology and information systems has become one of a company or organization's successes or failure factors. Because information technology will continue to develop and the tighter a company in business competition. [1] Therefore, IS/IT strategic planning is needed that harmonizes between business strategy needs and IS/IT strategies to get added value from a company in terms of competitive advantages. [2] Many companies are aware of the importance of IS/IT implementation to support business activities according to the company's vision and mission. There are three main objectives for implementing IS/IT in an organization or company. The first is to

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manage information by automating various processes to be more efficient in work; the second is that management effectiveness is further improved by satisfying information needs. The last is to change the business style and way of doing business to increase the competitive advantage of the organization or company [3].

Leony Frozen Food Company was established in July 2021, an agent located in Semarang, where the company focuses on selling food in a frozen and cold temperature that makes food not stale quickly. Starting from pre-orders that have to buy elsewhere and resell, Leony Frozen Food has developed into an agent with its offline store, and its business is currently using online (Grab, Gojek, and Shopee) offline. Currently, Leony Frozen Food is said to be minimal in implementing IS/IT. The bookkeeping of sales records and monthly income still use manuals recorded in books and cash book applications. Therefore, implementing information system strategic planning on Leony Frozen Food is expected to facilitate work in its business processes to be more effective and efficient.

The Ward and Peppard method is an information system strategic planning method to find out how well IS/IT implementation is and focus on the needs of conditions in Leony Frozen Food. [4] Underlying this research using the Ward and Peppard method is the problem that occurs in Leony Frozen Food because this method technique does not focus on the implementation of IS/IT in the company but focuses on the needs and conditions of the company's business. [5] The analysis technique used in IS/IT strategic planning is Value Chain analysis to describe key business processes and supporting business processes, then analyze SWOT to find out strengths, weaknesses, opportunity (opportunity), and threat (threat) and then conduct analysis Five Force Porter to see how external environmental conditions are a threat to the company in the company's competition, then continue to create a portfolio to implement good IS/IT using McFarlan Strategic Grid [6].

2. METHOD

2.1. Ward and Peppard

The Ward and Peppard method is an information system strategic planning method consisting of input and expenditure stages. The stages of input analysis of this method are Internal Business Environment Analysis which includes aspects of business processes that have been running in the company, External Business Environment Analysis which includes aspects of competition between companies with other threatening companies/organizations, IS/IT Internal Environmental Analysis which is an analysis of the implementation of IS/IT

companies/organizations about software and hardware conditions used, and IS/IT External Environment Analysis which is an analysis of technology trends and their utilization opportunities and those used by its competitors. This analysis is used to understand the development of SI/T [2].
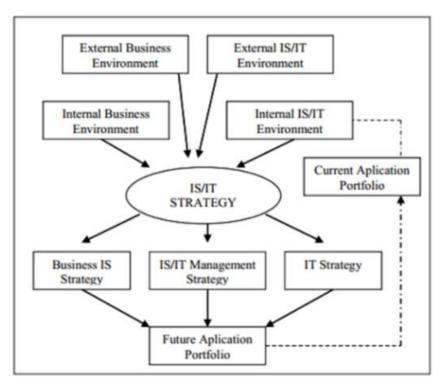

Figure 1. SI/TI Strategic Planning Model (Ward and Peppard)

While the output stages in this method are, Business Information System Strategy which includes how to utilize information systems in business that serve to become business targets, Information Technology Strategies that include policies and strategies in managing IS/IT and HR resources; and Management Strategies that include determining strategies in companies/organizations to ensure consistency in the implementation of SI policies [7].

2.2 Research Stages

The research methods conducted in this study used qualitative methods to analyze the activity with problems arising from object data to be described in descriptive form. The methods used are observation and interviewing. Then this study was analyzed using the Ward and Peppard method in analyzing IS/IT strategic planning on Leony Frozen Food.
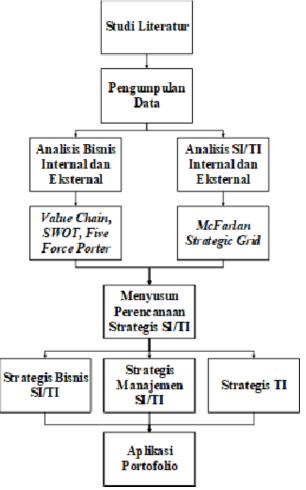
Figure 2. Research Stages

The explanation at the research stage:

1. Literature Studies

   In the first stage, this research conducts literature studies to collect library data to process research materials as a foundation for IS/IT strategic planning theory.

2. Data Collection

   The next stage is to collect data using observation techniques and interviews with Owner Leony Frozen Food.

3. Data Analysis

   The next stage is to analyze the data in internal and external business analysis by using Value Chain to determine the main business processes and supporting business processes in the Leony Frozen Food agency,

then followed by SWOT analysis to identify identifying strengths and weaknesses in the internal business as well as opportunities (opportunities) and threats (threat) in external business, then conducted five force porter analysis. Then analyze internal and external IS/IT using McFarlan Strategic Grid analysis. This analysis will get four categories of Strategic, High Potential, Key Operation, and SupportI.

4. Preparing SI/IT Strategic Planning
   The next stage is to compile IS/IT strategic planning based on the data that has been collected, then compiled IS/IT business strategy, IS/IT management strategy, and IT strategy.

5. Portfolio Application
   The last stage is creating a portfolio application formed as a result of the analysis that has been done to implement and improve S / IT on Leony Frozen Food.

3. RESULT AND DISCUSSION

3.1 Value Chain Analysis

Value Chain analysis is a series of analysis process activities to define the organizational structure, business functions, design, and support products or services. Value Chain analysis is grouped into primary activities (Primary Activit) and support activities (Support Activity)[8].
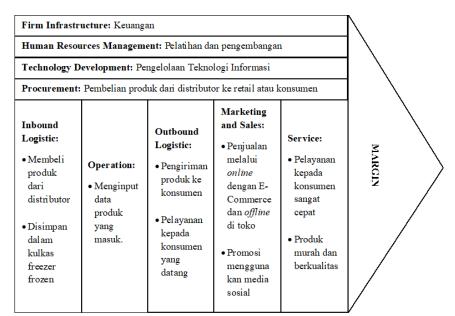
Firm Infrastructure: Keuangan
Human Resources Management: Pelatihan dan pengembangan
Technology Development: Pengelolaan Teknologi Informasi
Procurement: Pembelian produk dari distributor ke retail atau konsumen

Inbound Logistic:	Operation:	Outbound Logistic:	Marketing and Sales:	Service:
• Membeli produk dari distributor • Disimpan dalam kulkas freezer frozen	• Menginput data produk yang masuk.	• Pengiriman produk ke konsumen • Pelayanan kepada konsumen yang datang	• Penjualan melalui *online* dengan E-Commerce dan *offline* di toko • Promosi menggunakan media sosial	• Pelayanan kepada konsumen sangat cepat • Produk murah dan berkualitas

MARGIN

Figure 3. Agent Leony Frozen Food Value Chain Diagram

In Value Chain in **figure 3** describes the main activities and supporting activities on Leony Frozen Food and is described as follows:

1. Primary Activity
   a) Firm Infrastructure: Finance
   b) Human Resources Management: Training and Development
   c) Technology Development: Information Technology Management
   d) Procurement: Purchase of products from distributors to retail/consumers
2. Support Activity
   1) Inbound Logistic: Buy products from distributors, stored in frozen freezer refrigerators
   2) Operation: Input incoming product data
   3) Outbound Logistic: Delivery of products to consumers, service to consumers who come
   4) Marketing and Sales: Sales through online with E-Commerce and through offline in-store
   5) Service: Service to consumers is very fast, cheap, and quality products

3.2 SWOT Analysis

The last internal and external business analysis is the SWOT analysis. A SWOT analysis looks at the strengths and weaknesses, and opportunities and strengths companies have to maintain and improve competitiveness. [9] Then conclude, the entire analysis to compile the strategic plan of IS/IT to achieve its mission goals and vision. [10] SWOT analysis is used to look at the strengths and weaknesses and the opportunities and strengths that companies have to maintain and improve competitiveness. Here is a SWOT analysis for Leony Frozen Food agents in Table 1.

Table 1. Leony Frozen Food Agent SWOT Matrix Analysis Diagram

	STRENGTH (S)	WEAKNESS (W)
	Sales already use E-Commerce (Shopee Food, Grab Food, and Go-Food). - Marketing using social media is very easy for customer interactions. The price is relatively cheap	Human resources have not understood in using IS/IT. - Still use manuals in bookkeeping.

	and affordable than the price of products sold by its competitors. - Have an offline store that makes it easy for consumers to buy directly.	
OPPORTUNITY (O)	**S-O**	**W-O**
Have a program every month such as getting vouchers, etc. Relatively cheap and affordable price. - The service to consumers is good.	- Maintain consumer appeal by holding attractive programs in the sale of frozen food.	- Sales using the online system in E-Commerce (Shopee Food, Grab Food, and Go-Food) are already very good to add consumers more practically.
THREAT (T)	**S-T**	**W-T**
- Have many competitors who have done bookkeeping using IS/IT.	- The products offered have a low price and quality in sales online, making consumers buy the product more easily and comfortably.	- The need to procure HR Training so that HUMAN RESOURCES can understand IS/IT.

3.3 Porter's Five Forces Analysis

The next analysis used is Porter's Five Forces analysis, a five-competitive power model that is a strategic business tool for analyzing the state of the external environment in a company. [11] Several factors influence Leony Frozen Food's business processes, namely in the first part is an analysis of intra-industrial competition. Leony Frozen Food sells its products using online and offline systems in the competition to face competitors. For online systems using E-Commerce such as Shopee Food, Grab Food, and Go-Food. As for the offline system, Leony Frozen Food already has a store that makes it easier for consumers to advance products directly.
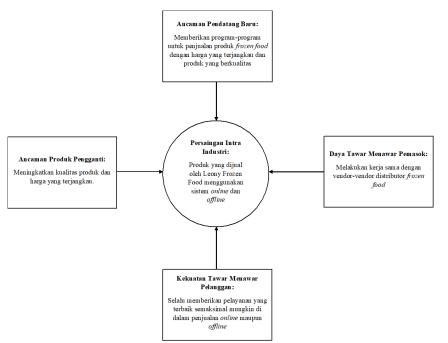
Figure 3. Five Forces Porter Agent Leony Frozen Food Analysis

Next in the second part is the threat of newcomers. The frozen food business has a lot of emerging new competitors because this business is very easy and practical. So Leony Frozen Food provides programs in marketing its products at affordable and quality prices. By providing a program in its marketing, consumers will be increasingly interested in buying products at Leony Frozen Food.

The third part is a threat analysis of replacement products. With competitors selling frozen food products, Leony Frozen Food must improve the quality of its products better at an affordable price so as not to become a threat to replacement products, and consumers still survive in buying products from Leony Frozen Food.

The fourth part is an analysis of the bargaining power of customers. To maintain customer satisfaction, Leony Frozen Food must always provide the best and maximum possible service in offline stores and online sales so that consumers can be interested in buying products sold by Leony Frozen Food.

Next, the last part is the analysis of the supplier's bargaining power. In the frozen food business, each agent has the authority to do greeting work with the distributor after. Leony Frozen Food gets quality products and affordable prices with good cooperation with distributors.

3.4 McFarlan Strategic Grid Analysis

McFarlan Strategic Grid analysis technique is used to map IS/IT applications based on the overall contribution value and is expected to be successful in their business. [12] McFarlan Stratetig Grid has four categories: strategic, High Potential, key operation, and Support. [10] The mapping results will illustrate the contribution of SI applications to the company and its future development. [13] For the McFarlan Strategic Grid mapping of Leony Frozen Food, following the preparation of its application portfolio in **Table 2**.

Table 2. McFarlan Strategic Grid Analysis Agent Leony Frozen Food

Strategic	High Potential
HR Management	recording of customer data
E-Commerce	Bookkeeping
Social Media	
Key Operational	**Support**
Attendance Information System	Microsoft Excel
	Analysis of goods in and out

3.5 IS/IT Business Strategy

From the analysis that has been done on Leony Frozen Food about IS/IT, the recommended IS/IT business strategies are:

1) Create a bookkeeping application information system to carry out income and expenditure activities to make it easier to operate it.
2) Create an information system for the recording of customer data.

3.6 Strategic IS/IT Management

From the interviews and analysis that have been conducted to implement IS/IT in the company, Leony Frozen Food does not yet have employees who can understand IS/IT. There need to be employees who can understand IS/IT to control and supervise the hardware and software that will be implemented.

3.7 IT Strategies

From the observations that have been made, Leony Frozen Food has not maximized the use of hardware (computers). Therefore, researchers recommend upgrading computer devices to maximize their use to support Leony Frozen Food's business operations.

3.8 Application Proposal

Based on the analysis results obtained from the above stages from the analysis of the internal and external business environment, the researcher gave several proposed applications for Leony Frozen Food. Here are the proposed applications in **Table 3**.

Table 3. Leony Frozen Food Agent Application Proposal

App Name	User	Status	Application Type
Accounting Information Systems	Employee	New and not yet implemented	Website
Employee Information System	Owner	New and not yet implemented	Website
Product Data Collection Information System	Employee	New and not yet implemented	Website
Attendance Information System	Employee	Implemented and upgraded	Website and Mobile
Sales Information System	Employee	New and not yet implemented	Website and Mobile

Based on the proposal, mapping four categories of McFarlan Strategic Grid is carried out to get a portfolio of Information System applications to be implemented in the future. Here is the portfolio in **Table 4**.

Table 4. Leony Frozen Food Agent Application Proposal Mapping

Strategic	High Potential
Sales Information System	Accounting Information System
	Employee Information System
Key Operational	**Support**
Attendance Information System (Upgrade)	Product Data Collection Information System

3.9 Application Proposal Implementation Mapping

Based on the proposals that have been made, there needs to be an arrangement of application proposals implemented. So, the researcher arranges in the next 4 (four) years, seen in **Table 5**.

Table 5. Mapping implementation of Leony Frozen Food Agent Application Proposal

IS Proposal	2022	2023	2024	2025
Accounting Information System	■			
Employee Information System		■		
Product Data Collection Information System			■	■
Attendance Information System				■
Sales Information System			■	

4.　CONCLUSION

Based on the results of data analysis in this study, Leony Frozen Food still has not implemented IS/IT, so business processes become hampered. Therefore, researchers analyzed Leony Frozen Food to prepare IS/IT strategic planning using the Ward and Peppard methods. Then produce a portfolio of information system applications that suit the needs and conditions of Leony Frozen Food. Based on the analysis results on Leony Frozen Food, there is a proposed Bookkeeping Information System, Employee Information System, Product Data Collection Information System, Attendance Information System, and Sales Information System. This proposal aims to increase effectiveness and efficiency in business processes at Leony Frozen Food. Based on the proposed application, it is expected to be implemented within 4 (four) years.

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