

Research Article

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The Development of Information System with Strategic Planning for Integrated System in the Indonesian Pharmaceutical Company

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Abstract: This research aims to develop an integrated information system for pharmaceutical companies in Indonesia, which has separate business units in two different locations. An Integrated System is needed to provide the value of competence in the technology and information systems that companies use in their business processes. The development stage starts from the assessment and understanding of the current situation both in the business environment and the IS/IT environment. The business environment includes the internal business environment and external business environment. Similarly, the IS/IT environment which includes internal and external IS/IT environments. With a deep understanding of current conditions, it can be determined the Information System (IS) strategy, Information Technology (IT) strategy and future IS/IT strategies. This study reveals the following results: The absence of good system integration with the business units involved makes the company in a weak position. But in terms of opportunity is quite high so that the use of technology and information systems that fit business needs is recommended in this study. The results of this study recommends some applications that can solve problems commonly experienced by companies such as system integration and business process automation to achieve more efficient and effective business processes.

Keywords: Information System, Strategic Planning, Pharmaceutical Company, Integrated System

1 Introduction

Currently only few qualitative researches for development of information system planning in particular pharmaceutical company, related to integration system which brought attention to.

At present, needs for health products has increase along with the increasing of public awareness of the importance of health. The manufacturing industries that supplies these products must further improve their services quality in order to continue compete and take advantage of the increasingly open market opportunities. Improvement of service quality and utilizing of market opportunities by using information technology and systems [6]. Information systems make it easier for companies to run their business processes more efficiently and effectively. With better information system, company can more gain profit. The competence of information system can be measured by its ability to provide information to help business processes and make the right decisions [11]. Integration of information system can produce more accurate data for top level management to make decision for market. Integrated system when implemented will enable best performance in all sector, improved performance influence on financial and operational cost reduction [15].

Information Systems support in a company added value for the company. Information system development planning with strategic is a solution for companies to optimize the existing technology and use it to make company's achieve business goals [3]. That there is a relationship between strategic planning and company performance. His study results show that companies with a high level of strategic planning have better performance compared to companies with lower level of strategic planning. The aims of information system strategy planning are for the improvement and utilization of technology, business process automation, integration between interrelated business lines, and all of company's business goals will be fit [2].

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In our research into one of pharmaceutical company in Indonesia which has separate business units in two different locations, show that their system not integrated one and others. Our goal of this research is to help the company to create IT Blueprint so this company can be more effective and efficient.

Company of pharmaceutical that we research, has objective to align its business strategic with IT integration.

The pharmaceutical company in Indonesia has separate business units in two different locations, the existing system cannot meet the needs of every business unit. Integrated systems was important to produce business processes that are efficient and effective to produce value for the company and cut the risk of failure in business in the future. Using information technology distance of manufacture and marketing division which in different area can be reduced.

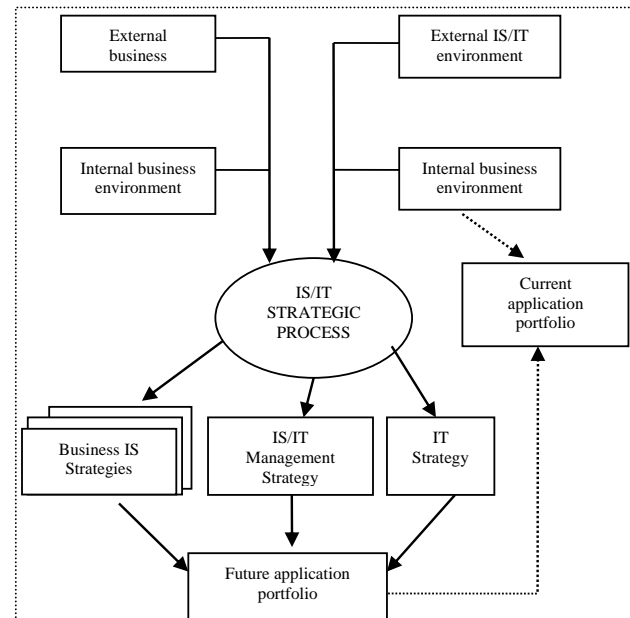


Figure 1: IS/IT Strategic Planning framework Ward and Peppard

2 Materials and Methods

2.1 Information system

The system defined as a group that is incorporate or interacting elements into a unit. And Information Systems(IS) is a component groups belonging and working together to achieve a common goal by accepting inputs (input) and produces output (output) in organizing this transformation process [13].

2.2 Information Technology

Information Technology (IT) is a general term that describes any technology that helps people to create, modify, store, communicate or disseminate information. TI brings together computerized high-speed communications for data, voice, and video.

Examples of IT not only in the form of a personal computer, but also telephone, TV, home appliances, and mobile phones [14].

2.3 IS/IT Strategic planning

Information technology strategy is a strategy that focuses on establishing of how technology can support in meeting the information needs and system of an organization vision [12]. This strategy can also adapt to information technology development today that can give rise to the opportunities and constraints of the future.

Model framework of strategic planning and information technology systems can be seen in Figure 1 above, and more details are as follows:

A. Inputs, as input into the strategic planning and information technology systems, consisting of:

- (a) The Internal Business Environment (Internal Business Environment): Is a business strategy that is used at the present time, goals, resources, processes, and organizational culture as well as the value of the business itself.
- (b) The External Business Environment (Internal Business Environment): Side of the political, economic, social, technological, industrial, and competitive climate in which they operate.
- (c) The internal IS/IT Environment (Environment Internal IT/IS): The views IT/IS to the business at present, the company's experience in the business, the business scope, and its contribution to the market, the ability of the company, the resources within the company and the technology infrastructure used. Application portfolio is running on the system and the system that are under development or developed yet but is in the company plan.
- (d) The External IT/IS Environment (External environment IT/IS): Technological developments and the opportunities that exist, and

IT/IS used by other parties, especially consumers, competitors and suppliers.

- B. Strategic planning processes / IT, the process by which information obtained from the inputs, will be processed to produce outputs.
- C. Output, is the result of a process that includes:
 - (a) IS Strategy (Strategy of Information Systems) How each unit used SI / IT to make their business achieve goals. Portfolio includes applications to develop for each unit and business model. Explaining the information architecture of each unit.
 - (b) Strategies and policies established to regulate the use of technology in the enterprise and manage resources expert technicians.
 - (c) IT/IS Management Strategy (Strategy Management IS/IT) Strategy applied common elements to the organization as a whole, ensuring consistency of policies based on the needs.
- D. Future Application Portfolio, details of which describes the proposed application to be used by the company in the nearest future, to integrate each unit of the company and customize technology development with the company development.
- E. Current Application Portfolio, details regarding the existing application of information systems applied to the company, with a look at the advantages and strengths obtained using the application and see the support of existing applications to the operational and strategic planning systems and information technology for the company to face competition and market.

Author choose Ward and Peppard framework for this research because author think this framework more suitable for company condition. complexity of organization structure still moderate. So we don't use COBIT or Enterprise Architecture (EA) for this research.

3 Value chain analysis

Classifying resources from upstream to downstream aims to simplify activities by utilizing technology and information systems as a container. This concept of classification is known as value chain analysis. This concept divides activities in the organization into nine activities which are then classified into two activities, namely the main activ-

ities and supporting activities [8]. The main activities include Inbound Logistics, Operation, Outbound Logistics, Marketing and Sales, and Services. Meanwhile, supporting Activities include Procurement, Technology Development, Human Resources Management, and Firm Infrastructure.

This analytical method aims to identify and classify activities that occur within the company into two major parts, namely the main activities and supporting activities. Afterward, for determining information system solutions to benefit the company these activities mapped and used as a basis. The steps in implementing Value Chain Analysis is to define all activities in the company's value chain, calculate the costs needed in each activity, and measure the possibility of development and development of competitive advantages that can be achieved. Value chain analysis is carried out to achieve and maintain a company's competitive advantage [1].

4 SWOT analysis

SWOT is a tool for defining the strengths, weaknesses, opportunities, and threats of a company [12]. SWOT as a technique to analyze the company's external and internal business environment used to achieve a systematic approach and support in decision-making [5]. The four factors in SWOT analysis are as follows:

- a) Strength (S) is an internal capability that stands out from a company compared to other companies. It is a competency in the company used as a comparison with competitors;
- b) Weakness (W) is the characteristic of a company that tends to reduce competent values and comparison with its competitors;
- c) Opportunity (O) is an opportunity that the company has or owned by the company;
- d) Threat (T) is an event that is very likely to occur that can cause certain losses for the company.

SWOT matrix is a tool used to compile corporate strategic factors. This matrix can illustrate clearly how the opportunities and external threats faced by the company adjusted to the strengths and weaknesses it has [10]. This matrix can produce four strategic alternative possibilities.

5 Porter's Five Force Analysis

This analysis is used to determine the advantages of the current and future competitive position so that companies

can increase strengths, anticipate weaknesses and avoid making the wrong decision [9]. The competition of an industry depends on five competitive forces or Five Competing Strengths.

- a) Competition among competitors. Many competitors, offering products and services that are no different, will reduce market appeal;
- b) The bargaining power of suppliers. The fewer suppliers, and the more you need their help, the stronger their position and their ability to charge you more. It can affect your profits;
- c) The bargaining power of buyers. A smaller and stronger client base means that each customer has more power to negotiate for lower prices and better offers.
- d) Companies that have many, smaller, independent customers will have an easier time charging higher prices to increase profitability;
- e) Threat of substitute products. When a close replacement is available, the customer will have the choice to buy the company's products, and the company's strength can be weakened;
- f) The threat of new entrants. New entrants in an industry bring new capacity and desire to gain market share

6 Mcfarlan grid

The fourth quadrant category of information systems based on the contributions of their business [12]:

- **Strategic applications** are critical to the business success of our future. They create and support a change in how organizations conduct business, with the aim of providing a competitive advantage. Note that whatever the technology used "cutting edge" does not indicate the application of strategic applications should be based on the contribution of the business.
- **Key operational applications** that maintain business operations, assist in avoiding losses. Can say that, in many businesses, the replacement rate of application (such as EPOS [electric point of sales], ATM [automated teller machine] and ERP) have become so widespread that they be "obliged" to survive in the industry.
- **Support applications** that increase the efficiency and effectiveness of business management, but do

not keep a business or provide competition advantage.

- **High potential innovative applications** that create opportunities to achieve profitability in the future, but not yet proven.

7 IT balanced scorecard

Efforts to optimize the organization by aligning organizational strategies using the system [7]. The Balanced Scorecard method used to produce a strategy formula based on the organizational structure owned. Kaplan and Norton further consider the most significant benefit of applying the balanced scorecard concept is the method applied as a management system and strategic planning. The User Orientation Perspective represents the user's judgment on IT.

The Operational Excellence perspective represents the work of the IT process to create and distribute applications. The Future Orientation perspective presents the needs of humans and technology with IT in carrying out their work. The Corporate Contribution perspective shows the value of business that has been created from IT investments. The IT Balanced Scorecard has four perspectives, namely:

- a) Corporate Contribution Perspective. This perspective evaluates the performance of the IT division from the perspective of executive managers, board of directors, and shareholders. In these perspective, strategic contributions, synergistic performance, business value of IT projects and management of IT investments are discussed. Measurements use based on the available or objective standards;
- b) User Orientation Perspective (Customer/User Orientation). This perspective evaluates IT division performances from the viewpoint of business people and customers of business units. In this perspective, customer satisfaction, IT or business integration, successful application development and service success rates are discussed;
- c) Operational Excellence Perspective. This perspective assessed by management to assesses IT performance based on the effectiveness and efficiency of IT processes. It is are;
- d) Perspective of Future Orientation. Perspective assesses IT performance based on the IT division's way of looking at challenges in the future. The organization's ability must be planned early to face challenges in the future. In addition, management must be able to know and predict future trends and make steps in anticipating them.

8 Methodology

In planning an information system strategy on a pharmacy company, a mindset was needed to identify the company's environment and information system establishment strategic plan that can be implemented.

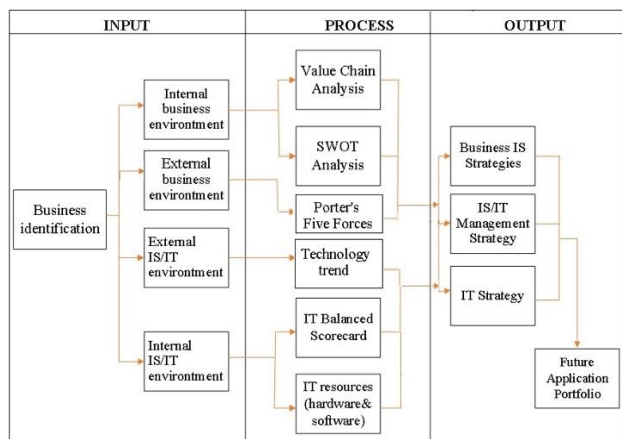


Figure 2: Methodology of Information System Strategic Planning for Pharmaceutical Company

- Internal Business Environment

- Value Chain Analysis

Using this method we can identify company business process and then we can conclude the need of technology for support company business process

- SWOT Analysis

This method assess company quadrant for enhance company business process

- External Business Environment

- Porter's Five Force

This method we can use to find out where the company's current position is, so that the company can increase strength, anticipate weaknesses and prevent the company from making wrong decisions

- External IT/IS Environment

- Technology Trend

Today's technological developments are widely used by companies to support their businesses aiming to production and operational costs, facilitate information exchange between each of their business units

- Internal IT/IS Environment

- IT Balanced Scorecard

After made the strategic goals, each perspective were taken measurements, and the strategic goals to be achieved in each strategic measure were set

- IT Resource

The hardware currently used by the company is sufficient to meet the user's information needs.

- Business IS Strategies

Business IS Strategy covers how each line of business will use information systems that can support company's business strategies. The results of the earlier analysis will be aligned with the IS requirements and produce an SI solution

- IS/IT Management Strategies

IS/IT Management Strategy is needed so that information system can run well and align with the existing business processes

- IT Strategies

IT Strategy are based on information system and information technology resource analysis. So that the application of the SI business strategy can run well and smoothly, it needs to be supported by the application of an right information technology strategy

- Future Application Portfolio

Based on the results of the formulation of the IS needs of the pharmaceutical company in the present and the future, Future Application Portfolio can be described using the McFarlan's Grid

Strategic Planning will produce documentation that contains the current environment and capabilities of the organization and how the organization is able to grow and develop in the future. Strategic planning is not only an important foundation for the company's operations, it also regulates corporate architecture, process improvement, produces good risk management, portfolio management, and initiatives throughout the company's business lines [4].

9 Results

Research was conducted in marketing office branch located in Jakarta, Indonesia. The interview conducted to every manager of each division in each workstream or area to have the proper representative of their expertise and to get more variety of their observation and experience and to IT

manager to get over all overview regarding current IS/IT conditions for pharmaceutical company.

The results of the stages in building develop information systems strategic planning by applying the Ward and Peppard method are described below. The study conducted in one of the pharmaceutical company in Indonesia. Each stage produces solution from every threat and opportunity in the pharmaceutical company both from the internal or external side of the company.

9.1 Value Chain Analysis

Interview Result

This method was carried out to identify the main activities and supporting activities of the company's internal activities. Below are the results of the value chain analysis:

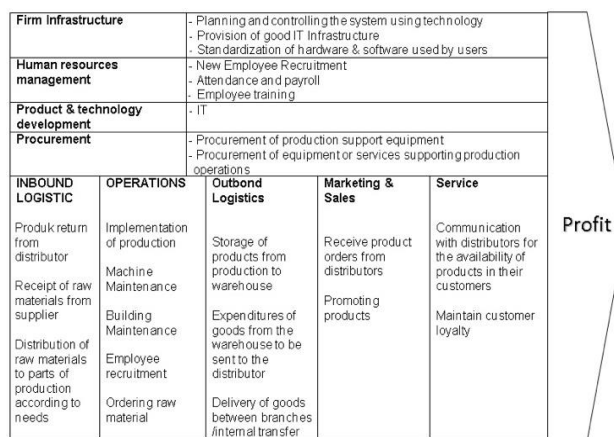


Figure 3: Diagram of Value Chain Analysis of Pharmaceutical Company

From the value chain analysis, it proposed the primary activity of the information system solution such as the application of Enterprise Resource Planning (ERP), Knowledge Management System (KMS), Customer Relationship Management (CRM), Budget Analyst System, E-commerce for B2B2C and other applications according to company requirements. The supporting activities for the proposed information system solution included the application of IT Ticketing System, Software Marking, HR System, Accounting System, Data Audit System and and other applications according to company requirements. Make sure each proposed application able to answer the problems of each business activity and align with the company's business goals. The proposed application will be different, tailored to the needs of each company.

9.2 SWOT Analysis

Interview Result

SWOT Analysis was carried out to select and compare strategies by comparing internal factors, i.e.: strengths and weaknesses, with external factors, i.e.: opportunities and threats to the pharmaceutical company. After interviewing and observing the pharmaceutical company, the results of the SWOT analysis are described as follows:

Strengths	Weaknesses
(S1) One of the leaders in the field of dermatology (S2) Products through good quality management before reaching the customer's hands (S3) A large number of customers	(W1) There is no system integration between one part and another (W2) Irregular scheduling of the production (W3) Lack of management support for IT in the company (W4) Still using a normal PC as a server
Opportunities	Threat
(O1) Partnership with strong raw material suppliers from abroad (O2) Cooperation with doctors has been well-established. (O3) The need for high-dermatology products (O4) The high need for quality data and information (O5) Technological developments and advancements for system/application optimization	(T1) Data of sales is not up to date (T2) There are quite a lot of competitors in the same business

Figure 4: SWOT Analysis of Pharmaceutical Company

Strategy mapping was made to identify how the company's internal strengths were able to take advantage of external opportunities, how the company overcame the company's internal weaknesses by utilizing external opportunities, how the company's internal strengths were able to deal with threats from external companies and how the company overcame internal weaknesses and avoided external threats.

Strategic (SO)	Strategic (WO)
1. Increasing number of customer loyalty to the product. 2. Increasing the sales target by expanding the sales area.	1. Increasing the power of IT to support customer relations systems 2. Improving production scheduling so that stock can be maintained in accordance with market demand 3. Upgrading server to optimize system/application performance
Strategic (ST)	Strategic (WT)
1. Maintaining product quality and availability.	1. Improving the flow of information systems to speed up the process of calculating data from distributors. 2. Improving the performance of the IT division so that management can provide full support.

Figure 5: Criteria of Strategic SWOT

Calculations for SWOT analysis are outlined in the IFAS table (Internal Strategic Factor Analysis Summary) and EFAS (External Strategic Factor Analysis Summary) as follows:

STRENGTH	weight	Grade	value
(S1) One of the leaders in the field of dermatology	0.121	4.87	0.587
(S2) Products through good quality management before reaching the customer's hand	0.121	4.67	0.563
(S3) A large number of customers	0.205	5.00	1.024
Sub-total			2.174
WEAKNESS	weight	grade	value
(W1) There is no system integration between one part and another	0.159	4.70	0.746
(W2) Irregular scheduling of the production	0.148	4.60	0.679
(W3) Lack of management support for IT in the company	0.095	4.63	0.441
(W4) Still using a normal PC as a server	0.152	4.57	0.696
Sub-total			2.562
Total S-W (Coordinate point X)	1.000		- 0.388

Figure 6: IFAS Table

OPPORTUNITIES	weight	grade	value
(O1) Partnership with strong raw material suppliers from abroad	0.079	4.30	0.341
(O2) Cooperation with doctors has been well-established.	0.192	4.93	0.948
(O3) The need for high-dermatology products	0.103	4.90	0.506
(O4) The high need for quality data and information	0.168	4.87	0.819
(O5) Technological developments and advancements for system/application optimization	0.125	4.63	0.581
Sub-total			3.194
THREAT	weight	grade	value
(T1) Data of sales is not up to date	0.203	4.60	0.935
(T2) There are quite a lot of competitors in the same business	0.129	4.83	0.621
Sub-total			1.556
Total O-T (Coordinate point Y)	1.000		1.638

Figure 7: EFAS Table

Based on the results of IFAS and EFAS matrix analysis, the position of the strategy to be selected from the SWOT strategy matrix can be determined. The calculation results are as follows:

- X-axis (Strengths - Weaknesses) = $2,174 - 2,562 = -0,388$
- Y axis (Opportunities - Threats) = $3,194 - 1,556 = 1,638$

The diagram shows that the company internal and external factors are in the **quadrant III** positions. This position signified a weak organization that was very likely. The

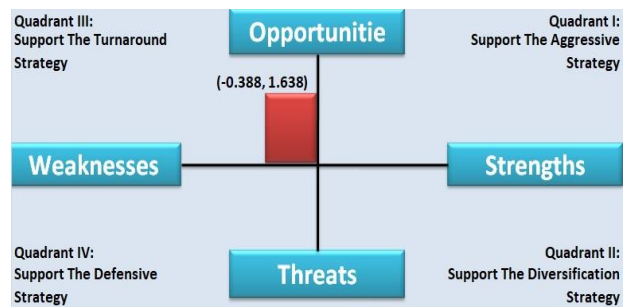


Figure 8: Position Company on The SWOT Diagram

recommended strategy was in accordance with the previously created SWOT matrix, the WO Strategy. From the WO Strategy, the information system solution is as follows:

Weaknesses	Opportunities	Strategy Objective
<ul style="list-style-type: none"> • Has no integrated system between one part and another. • Irregular scheduling of the production. • Lack of management support for IT in the company. • The use of technology that has not been maximized, such as the use of common PCs that are used as servers. 	<ul style="list-style-type: none"> • Partnership with strong raw material suppliers from abroad. • Cooperation with doctors has been well-established. • The need for high-dermatology products. • High need for quality data and information. • Technological developments and advancements for system/application optimization. 	<ul style="list-style-type: none"> • Increasing the power of IT to support customer relation systems. • Improving production scheduling to meet market needs in accordance with the market trend. • Upgrading server to optimize system/application performance.

Figure 9: Information System Solution from SWOT Analysis

9.3 Porter's Five Forces Analysis

Interview Result

Porter's Five Forces analysis model used to find out where the company's current position is, so that the company can increase strength, anticipate weaknesses and prevent the company from making wrong decisions. In this analysis, five competing forces are identified, namely:

a. Rivalry, including:

- How tight is the competition in today's business?
- How strong are the existing competitors?
- What is the industry growth rate?
- How competitive are the company's products in the market?

b. Threat of substitutes, including:

- Are the products offered by competitors better or worse?
- What differences exist between the product or service substitute with the product provided by the company?
- c. Buyer power, including:
 - How big is the market share?
 - How big is the opportunity for buyers to get cheaper prices?
 - How strong the effect of product differences can influence buyer decisions?
 - How much influence is from the quality of a product?
- d. Supplier Power, including:
 - How many suppliers are there in the market?
 - How many suppliers are willing to provide lower prices with the same quality?
 - Can the company change suppliers?
 - Is the supplier centralized or scattered?
 - e. Threat of new entrants and entry barriers, including:
 - How easy is it to start a company in business?
 - Regulations applicable
 - Capital for investment
 - Barriers for competitors

The results of this analysis are the identification of conditions of opportunities and threats from outside the company. By knowing these conditions, it is expected that the company can reduce the impact of these threats and take advantage of the existing opportunities to become more values for the company so that it can continue to compete in the health industry.

9.4 IT Balanced Scorecard Analysis

Interview Result

IT Balanced Scorecard Analysis. After made the strategic goals, each perspective were taken measurements, and the strategic goals to be achieved in each strategic measure were set. IT Balanced Scorecard measurement starts with:

- a) Determine the strategic goals of IT. Before taking measurements, first figure the vision and mission of the IT division in the company which will be a reference in determining strategic and strategic goals;
- b) Mapping from an IT Balanced Scorecard perspective. This mapping is the result of the TI strategy formu-

lated into each perspective on the IT balanced scorecard;

- c) Evaluate system performance results. The results of the mapping will then be evaluated according to the specified weight categories. From these results will be seen the value of each perspective, so we can determine the SI solution that suits the company's needs.

The following results from the measurement of the IT Balanced Scorecard method that have been carried out in the pharmaceutical company:

PERSPEKTIF	Average	Average Total	Rating
Company Contribution Perspective			
IT Contribution	57.75%	57.75%	Enough
User Orientation Perspective			
Increasing Information System User Satisfaction	65.28%		
Improving Information System User Performance	42.88%	53.13%	Enough
Operational Excellence Perspective			
Information System Service Availability	59.81%		
Information System Service Process Speed	65.26%		
Information Audit	100.00%	65.26%	Good
Future Orientation Perspective			
Technology Updates and Service Features	39.29%		
Improving the quality of the IT Division	31.25%	35.27%	Not Good
	Average	55.53%	

Figure 10: Strategic Size and Strategic Objectives of the IT Balanced Scorecard

From the results of the performance measurement above to the four perspectives that existed in the IT Balanced Scorecard, it can be seen that the performance of the IT division was in the category of Enough with an average of 55.53%. The conclusions can be drawn as follows:

The perspective of Operational Excellence has reached 65.26%, meaning that the service and speed of response have been well given by the IT division. IT performance was considered to be good enough in responding to current problems. In addition, granting access rights was in accordance with Information security. The information system solution that can be proposed is Ticketing System, the purpose, which is the implementation of a system that can monitor user complaints.

The perspective of Company's contribution reached 57.75%, meaning that the current system has not contributed much to the company. For this reason, it is necessary to improve the existing system. The information system solution that can be proposed is the ERP System, the

purpose of which is to implement a system that fits the business needs of the company's processes. In this day ERP become more streamless processes, ERP provide more accurate data and realtimeand also reduced cost.

The perspective of user orientation reached 53.13%, meaning that there is still a need to improve the IT problem solving process both in terms of speed and accuracy. In this area IT Ticketing System needed so that IT performance can be tracked and IT problem can be measured how often is the repeat problem and how to solve it.

The information system solution that can be proposed is Knowledge Management System (KMS), the purpose of which is to increase the speed and accuracy in solving the existing problems. Pharmaceutical Industry need to distribute knowledge widely, with KMS knowledge can be distributed more accurate and realtime.

The perspective of future orientation was 35.27%, meaning that the current carrying capacity of technology is still weak. The current technology has not met all of the company's information needs. For this reason, the need for technological development that is in line with the current information needs is increasing. And there needs to be an increase in management confidence in IT investments. The information system solution that can be proposed is the Budget Analyst Information System, the purpose of which is to increase management trust in IT investments, by calculating the automatic budget and revenue. Within IT Investments in company with better hardware so that company can create more market using B2B2C such as e-Commerce. Using B2B2C every pharmaceutical company can reach more end user customer.

The Information System Solution given above is the result of research conducted on one of the pharmaceutical company in Indonesia. Every IS solution given for each company is different, according to the company's needs and the objectives of the business.

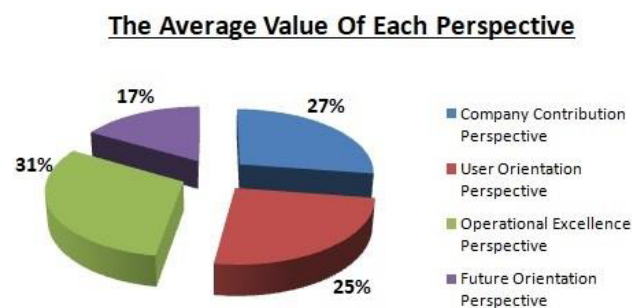


Figure 11: Percentage Results From Each Perspective

The percentage of average scores from each perspective shows the Operational Excellence Perspective is the highest value from other perspectives. For this reason, there needs to be an increase in every perspective to mitigate corporate threats in the future. Improving the quality of IT Department by improving the quality of human resources, the accuracy of the use of technology and information systems is recommended.

9.5 IT Resources Analysis

Interview Result

IT Resources Analysis. The hardware currently used by the company is sufficient to meet the user's information needs. However, a more reliable server upgrade is needed to cover user information needs that are currently increasing. Information systems used by companies have not been integrated between interrelated parts so that the information process becomes less effective and efficient. By using McFarlan Grid, it can map current information system running at pharmaceutical company, so that critical software can be seen at this time. From this matrix, we can set priorities of the investment in the information system field.

Most applications that have been already owned by companies in the pharmaceutical company are the operational support and key categories because they are used to support the company's business activities and are used locally for certain business activities, but there is no integration between these applications. In the future, the IT Department, especially the Software Development department, must integrate all existing applications using web-based applications. Therefore, in the future, all applications can be expected to be integrated and have the advantage of application access. Web based application is cheaper technology for all branch its can used using all browser either way using computer or smarthphone so every branch can access data in real time and accurate.

9.6 Technology Trend Analysis

Technology Trend. Today's technological developments are widely used by companies to support their businesses aiming to production and operational costs, facilitate information exchange between each of their business units, etc. Technology Trend. Today's technological developments are widely used by companies to support their businesses aiming to production and operational costs, facilitate information exchange between each of their business

units, service quality improvement and etc. This technological trend can be used by companies for business operations. But the technology trends chosen must be in accordance with the company's business goals. Trend of cloud server now day can be more promising. Using cloud server company can save cost for creating data center in house. Maintenance of server can be more costly.

9.7 Business IS Strategy

Business IS Strategy covers how each line of business will use information systems that can support company's business strategies. The results of the earlier analysis will be aligned with the IS requirements and produce an SI solution. The aim is that the utilization of the information system that will be proposed is in line with the company's current business needs to produce an efficient and effective business process in accordance with the company's goals. The results of the information system needs are generated from the analysis methods that have been done before. From the results of the analysis methods that have been carried out, IS Business Strategy is produced as follows:

IS needs	IS Features	IS Solutions
System for budgeting	Automatic calculation of budget and revenue	Implementation of a budgeting system
Implementing a ticketing system for IT services	Calculation of IT problem solving time	Implementation of IT Ticketing systems
Companies need a system that can help the integration between sales and production systems.	Alignment of sales and production data	Implementation of an integrated system between sales and production
System for audit information	Track data redundancies.	Audit Information System

Figure 12: Business IS Strategy

9.8 IS/IT Management Strategy

IS/IT Management Strategy is needed so that information system can run well and align with the existing business processes. What must be done in IS management is to formulate IS policies, namely:

- Procedure for Utilizing information system, this procedure serves as a guideline in the use of IS facilities by users for the smooth and safe use of IS facilities;

- Procedure for IT Infrastructure Maintenance, this procedure serves as a guideline in carrying out maintenance of IT Infrastructure within the organization;
- Procedure for Procurement of IT Infrastructure, this procedure is carried out before the procurement of company goods where the goods purchased by the company must be compatible, safe and quality;
- Procurement Procedure/IT Application Development, this procedure is carried out as a guideline for future application development.
- Procedure how to recover from disaster. This procedure is a guideline for backup and restore data, and how to act when disaster is happen.

9.9 IT Business Strategy

IT Strategy are based on information system and information technology resource analysis. So that the application of the SI business strategy can run well and smoothly, it needs to be supported by the application of anright information technology strategy. From the results of the analysis methods that have been carried out, the IS Business Strategy is produced as follows:

Objective	Critical Success Factor	IT Strategy
IS/IT Contribution	Developing IT infrastructure that can contribute more to the company	Developing servers efficiently by using virtualization technology
User Satisfaction	Developing monitoring system for user satisfaction	Installing the ticketing application and conducting a questionnaire to get a response of user satisfaction
Availability of IS/IT Services	Developing a monitoring system for IS/IT services	Installing Nagios for network monitoring
Response of Services	Establishing a service response time monitoring system	Installing ticketing application

Figure 13: Business IT Strategy

9.10 Future Application Portfolio

Based on the results of the formulation of the IS needs of the pharmaceutical company in the present and the future, Future Application Portfolio can be described using the McFarlan's Grid.

After we know the 7 question for determine the quadrants the next step is to answer the question using the proposed IS/IT solution. The answer will be given "Y" mark for yes answer

No	Question	Quadran
1	is IS/IT solution can produce more competitive benefit for company ?	Strategic
2	is IS/IT solution can beuse for company to achive certain business goal or critical success factor?	Strategic
3	is IS/IT solution can handle the obstance in business competition ?	Key Operational
4	is IS/IT solution can avoid and minimize risk that can be become major problem in compay ?	Key Operational
5	is IS/IT solution can increase productivity and reduce long term cost ?	Support
6	is IS/IT solution can meet the need of company?	Support
7	is IS/IT solution can bring benefit and uncertain benefit that may result like point 1 and 2 ?	High Potential

Figure 14: Question for Determine McFarlan Grid

No	IS/IT Solution	Question						
		1	2	3	4	5	6	7
1	CRM	Y	Y					
2	ERP	Y	Y					
3	Budget Analyst System							Y
4	IT Inventory System					Y	Y	
5	HRD System			Y	Y			
6	Accounting System			Y	Y			
7	KMS							Y
8	E-Commerce							Y
9	IT Ticketing					Y	Y	

Figure 15: Answer for Question of Quadran

This section discusses the mapping of information system applications based on their contribution to the company. This application portfolio uses the McFarland matrix whose next step determines the quadrants of each SI solution. McFarland mapping is done based on 4 quadrants, namely: strategic, high potential, key working, and key support.

STRATEGIC	HIGH POTENTIAL
1. CRM	1. BudgetAnalyst System.
2. ERP	2. KnowledgeManagement System
	3. E-Commerce (B2B2C)
1. HR System	1. IT Ticketing System
2. Accounting System	2. IT Inventory Control
KEY OPERATIONAL	SUPPORT

Figure 16: Mcfarlan Grid for Future Application Portofolio

9.11 IS Development Roadmap

This section discusses the guidance for IT to planning the development of software that proposed before so IT development can more align within IT/IS Strategic that we discussed before.

Application System	Year 1		Year 2	
	S1	S2	S1	S2
CRM	v	v		
ERP	v	v		
HRD			v	
Accounting			v	
Budget Analyst				v
KMS				v
E-Commerce				v
IT Ticketing				v
IT Inventory				v

Figure 17: IS Development Road Map

For the priority of development using McFarlan Grid we can see the important quadran for business continuity is Key Operational, and then Strategic, Support and High Potential. In Mcfarlan grid ERP and CRM inside Strategic quadran so the first year of development company will be focused for developing ERP and CRM. For HRD and Accounting inside of Key Operational so the development will be focused in year 2 in semester 1. For High Potential quadran will be develop in year 2 in semester 2.

10 Conclusion

To conclude, this research was conducted to provide the reader with literature "how to build an integrated information system in accordance with company needs?". This study adopted a ward and peppard framework that researchers grouped into three main phases in designing an information system, namely: Input, this phase the researcher identified the internal and external factors of the company. Then the process phase, in this phase the analysis method is carried out to find out what strategies must be given so that the implementation of SI is in line with the company's business needs. The final phase is Output, in this phase, the Strategy is aligned with the information needs of each business line to produce an integrated system.

In the SWOT analysis, the company is in quadrant III and it is recommended to do a WO strategy that utilizes opportunities to mitigate weaknesses. In the Future Orientation perspective, the carrying capacity of technology is only around 17%, this will be a threat to the company if the company does not make early mitigation efforts to upgrade technology in accordance with the company's information needs to create competitive advantage.

Several applications are proposed in the development of strategic planning in this research such as ERP, KMS, CRM and other supporting applications that can meet the company's information needs. The proposed application of each development can be different, depending on the business needs and financial capabilities of the company.

Management support is needed from every information system development to optimize every use of information technology and systems. For Information Systems Development, a special team is responsible for this project by involving the PMO (Project Management Office) in it to make the project run well and smoothly without disrupting the daily activities of the IT division.

The results of this study are still being processed in the company. But we help companies to harmonize their business processes using information technology so that the development of their information systems can be better suited to their business needs.

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