

INFORMATION SYSTEM STRATEGIC PLANNING USING WARD AND PEPPARD IN PHARMACEUTICAL COMPANY

Kevin Christianto¹⁾, Denny²⁾, Agus Santoso³⁾, Chabelita⁴⁾, Jonathan Gonawan⁵⁾

^{1,2,3,4,5} Sistem Informasi, Fakultas Teknologi dan Desain, Universitas Bunda Mulia,
Jl. Lodan Raya No. 2 Ancol, Jakarta Utara 14430
Co Responden Email: 11591@lecturer.ubm.ac.id

Article history

Received 15 Nov 2021

Revised 29 March 2022

Accepted 13 April 2022

Available online 13 April 2022

Keywords

IS Strategic Planning,
Ward and Peppard,
Pharmaceutical Company

Riwayat

Diterima 15 Nov 2021

Revisi 29 Maret 2022

Disetujui 13 April 2022

Terbit 13 April 2022

Kata Kunci

Perencanaan Strategi SI,
Ward and Peppard,
Perusahaan Pharmaceutical

Abstract

In today's business world, competition is very tight, so that information technology is also developing quite rapidly, which in the end will require an organization to be able to innovate and create all the techniques that are expected to maintain its market and consumers. Every organization must be able to formulate strategic planning in the end a policy that has been decided can run effectively and efficiently. Strategic planning is not only in the general field but planning in the strategic field of information systems (IS) will greatly affect how sustainable or not an organization. IS an important vital of a company to support company performance. Likewise, pharmaceutical companies must also increase their fighting power by using IS. This goal can be achieved if the company has made a strategic IS design that seeks to increase organizational profits. When designing the IS strategic plan, resources are needed that can help make the most of the IS strategic role. The ability to compete and create competitive advantage will ultimately make the company gain material benefits. This research was conducted to make a strategic design of information systems strategic to increase company sales using the Ward and Peppard methodology.

Abstrak

Dalam dunia bisnis saat ini, persaingan sangat ketat, sehingga teknologi informasi juga berkembang cukup pesat, yang pada akhirnya akan menuntut suatu organisasi untuk dapat berinovasi dan menciptakan segala teknik yang diharapkan dapat mempertahankan pasar dan konsumennya. Setiap organisasi harus mampu merumuskan perencanaan strategis yang pada akhirnya suatu kebijakan yang telah diputuskan dapat berjalan secara efektif dan efisien. Perencanaan strategis tidak hanya di bidang umum tetapi perencanaan di bidang strategis sistem informasi (SI) akan sangat mempengaruhi bagaimana berkelanjutan atau tidaknya suatu organisasi. Adalah sangat penting dari sebuah perusahaan untuk mendukung kinerja perusahaan. Demikian juga, perusahaan farmasi juga harus meningkatkan daya juang mereka dengan menggunakan SI. Tujuan ini dapat tercapai jika perusahaan telah membuat desain SI strategis yang berupaya meningkatkan keuntungan organisasi. Saat merancang rencana strategis SI, diperlukan sumber daya yang dapat membantu memaksimalkan peran strategis SI. Kemampuan bersaing dan menciptakan keunggulan bersaing pada akhirnya akan membuat perusahaan memperoleh keuntungan material. Penelitian ini dilakukan untuk membuat rancangan strategis sistem informasi strategis untuk meningkatkan penjualan perusahaan dengan menggunakan metodologi Ward and Peppard.

INTRODUCTION

PT. MPL is a company engaged in the pharmaceutical sector that sells medicines consisting of over the counter and prescription drugs. The model adopted from this kind of business requires companies in the pharmaceutical sector to earn profits to get a return on investment in Research &

Development and of course also in sales and marketing by maintaining current growth and controlling spending on R&D. Likewise, several pharmaceutical companies are currently facing no small challenge to survive (Teramae et al, 2020). To manage information systems and information technology (IS/IT) strategically, it is helpful to understand how the role of technology-based information

systems has evolved in organizations (Clement and Swallow, 1995), (Geasela & Andry, 2019). From a strategic perspective interaction with the environment considers external business forces influencing the actor under investigation on a strategic level (e.g., competitors forcing down prices) (Pijpers et al, 2005), (Tannady et al, 2020). An organization especially a large organization should need to know where its advantages and disadvantages so that it can create effective strategies utilization of organizational resources that are owned to place themselves in the global business competition (Basri and Suryani, 2018). The aim to be achieved is to try to analyze the strategy of their information system, as well as to reproduce a strategic plan on information systems in the organization, and to assess various details of strategic planning of information systems in the organization where this case is made. There are so many benefits that can be obtained when a plan for an information system is carried out, including what information systems will be implemented later, as well as any application portfolio that is produced based on the needs of each company's business unit, in the end, the investment that will be budgeted by the company are expected to be able to make a positive and good contribution to a sustainable business (Septiana et al, 2020). Another objective of the research conducted by this author is to be able to implement an information system that will be in line and in accordance with the company's business strategy that is carried out with predetermined business objectives, and this system can also relate to other departments or units. When asked to be able to improve the company's internal performance and respond to future (Madyatmadja et al, 2020) market challenges and of course consumers, an in-depth research step is needed to answer the problems faced, of course using the Ward & Peppard framework model which will be linked to the IT Balanced Scorecard (Setiawan and Yulianto, 2017). If without good and careful planning, the authors often encounter information systems that will be entangled in a settlement that is not optimal with the investment value of money that does not match expectations (Sampurna, 2015). Management will use strategic planning, will work with consultants in its preparation, usually, a tool will be used to make decisions about various developments in the information

contained in the company (Koper, 2005), (Sudarsono et al, 2020)

RESEARCH METHOD

Emphasis on the existing technology or just business will certainly not be able to meet the adequacy to provide success in planning a strategy. The move that can be taken to obtain strategic privileges on existing information systems and technology is to re-concentrate all current business processes by conducting various analyzes of business issues that are very interesting discussions or are becoming trends (Mohammad, 2017). The notion of strategic alignment is met by various variations between all symbols at the level of concern in the field of business strategy and symbols of strategic importance in systems/information technology at the expected time (Andry et al, 2021).

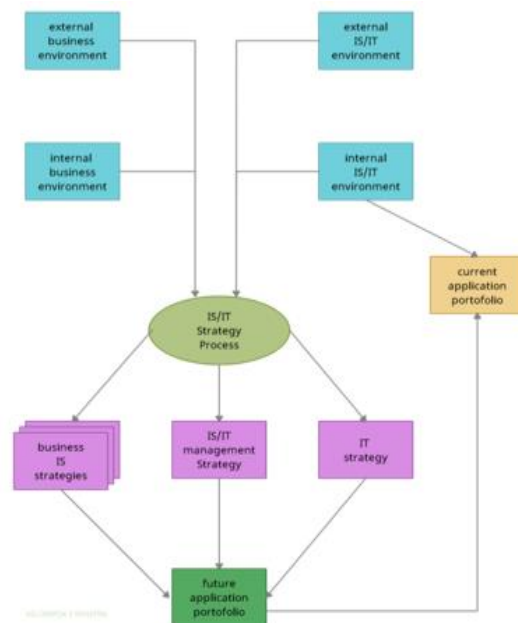


Figure 1. Ward & peppard method (Iman and Hartono, 2007).

The Ward and Peppard method were carried out to conduct a thorough study and plan for the IS/IT strategy in Figure 1, there are various steps to be taken, namely:

A. Environment around the organization's internal business: by mapping today's business strategy, with objectives, existing resources, internal processes, and internal organizational

culture. The analysis carried out on the internal business environment makes it possible to determine a business strategy for the company, vision, and mission and the long term of the company, various activities carried out and business processes that are currently taking place, existing resources, and data, information needed in the company. the organization.

B. Environment surrounding the External Business: by mapping various economic situations, the environment around the company, and the competitive environment in which the organization operates. The external business environment can help become a driving force for companies to step up and be able to compete, providing various obstacles, including threats that come to the survival of the organization.

C. IS/IT environment in Internal: IS/IT perspective on internal business processes, their maturity, scope and various business contributions, as well as existing skills, existing resources and technology infrastructure in IT department, current applications in inventory, and any systems to be developed or scheduled but not yet completed are an important part of the internal IS/IT environment.

D. Environment around external IS/IT: current technology trends and opportunities to gain the benefits that IS/IT can bring to others, particularly for customers, competitors, and suppliers. The analysis is used to obtain a good understanding of the development of IS/IT outside the company which will certainly have an impact on the survival of the company.

E. Current application portfolio: applications on information systems that already exist or are currently being used by the company. Identify how advantages can be obtained and what strengths are obtained by the application when facing the competition that organizations face today.

RESULT AND ANALYSIS

The results that have been carried out by mapping the elements that have strengths,

weaknesses, opportunities, and threats are obtained by the coordinates of the SWOT matrix. To find out which matrix coordinates within the company, calculations can be made based on the IFAS and EFAS values. The results obtained are shown in Table 1 and Figure 2.

Table 1. Value of ifas and efas

Value of IFAS	3.05
Value of EFAS	3.09
= Coordinate Position of SWOT	

Figure 2 can shows that Pharmaceutical Company for next shortened to PhCo is in quadrant I with coordinates (3.05, 3.09). This the strategy is focused on the strategy of Strength – Opportunities (S-O).

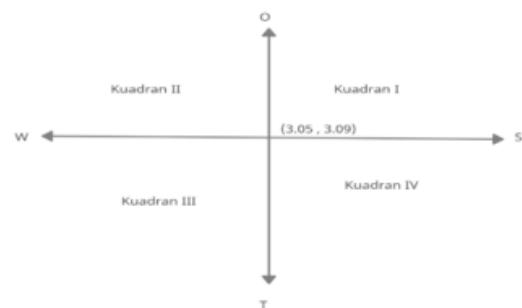


Figure 2. Coordinates of swot

The SO strategy is a strategy that utilizes the internal strength of PhCo by taking advantage of the opportunities that exist outside PhCo. Quadrant 1 is an advantageous position. PhCo has opportunities and strengths that can take full advantage of opportunities can be. SO strategy according to PhCo can be seen in Table 2.

Mapping Strategy of S–O to BSC

4 perspectives from figure 2, can be seen into map of strategy. Map of strategy of PhCo can be seen in Figure 3. Each perspective should have relevance. Once the map of strategy is done, then it will be sorted out which strategy will be used at this time.

Table 2. SO Strategy of phco

Internal Strategy Factors			
STRENGTH			
No	Information	Score	Analysis
1	Have many distributors	0,16	Consumers can get use value in products according to their needs.
2	Company Brand Image	0,36	Companies can develop their products by utilizing the image that has been formed from their old products, and consumers are more likely to make repeat purchases continuously.
3	Competitive selling price	0,30	The number of product choices that consumers can choose with their respective needs
4	Great product variety	0,52	Make it easier for goods to reach consumers
5	Good after-sales service	0,30	Maintaining customer satisfaction with the product
WEAKNESS			
No	Information	Score	Analysis
1	Advertising messages that are not conveyed to consumers	0,32	Consumers will not know the product if the advertising message is not understood by consumers
2	Lack of promotion for some products	0,10	Consumers who are sensitive to promotions will prefer other products that have promotions
3	Product production is often delayed	0,30	Consumers have difficulty getting the product
4	Lack of delivery service to distributors	0,30	Consumers have difficulty getting products in some areas
5	The company website does not support the company	0,39	Consumers find it difficult to find details about the company
External Strategy Factors			
OPPORTUNITIES			
No	Information	Score	Analysis
1	Pharmaceutical technology development	0,48	Because the development of industrial technology is getting faster, the pharmaceutical technology will also develop
2	Increased self-medication	0,33	Consumers can do self-medication easily because more and more products are provided
3	Broad market segmentation	0,08	To increase the effectiveness of marketing as well as the utilization of production resources
4	Can launch new products	0,24	Consumers can choose many variants
5	Changes in people's lifestyle	0,30	People's lifestyles will change with the development of pharmaceutical technology
THREATS			
No	Information	Score	Analysis
1	The number of competitors for similar products	0,30	The pharmaceutical business competition will be tougher
2	Raw material prices tend to rise	0,30	Production costs will increase
3	Government policy	0,07	Companies cannot be able to follow government policies
4	Declining purchasing power of the people	0,39	Decreased product sales
5	Consumers easily switch	0,60	With so many competitors, consumers will easily switch to another

Analysis using PEST can be used as an evaluation of the Political, Economic, Social, and Technological, which will result in an

analysis that is not so convincing. The basic principles for this method are factors that have a direct influence on the attractiveness of the

company, and which will be most likely to change in the future which should be the subject of further study.

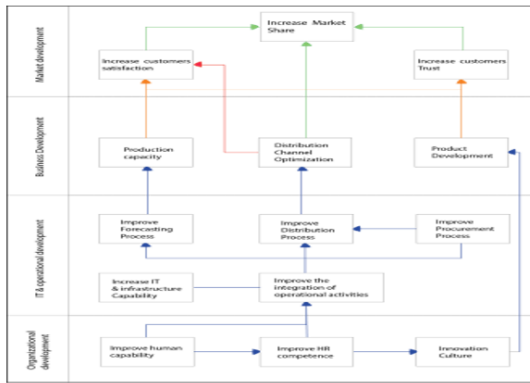


Figure 3. BSC

The following is an analysis of the internal business environment mapping with Value Chain analysis technique, this analysis is carried out to find out clearly the business processes that occur at PhCo so that it will be obtained a clear picture of the Information System strategic plan for meet company needs. Where from the existing business processes in PhCo, will be classified into two activities, namely the main activity and support activities.

From the research results obtained the results of the IS environmental analysis, where

the internal IS analysis aims to find out what information systems have been implemented by the company. Company has used an information system that can help the continuity of its business processes, such as applications that are useful in assisting the purchase of goods, material processing, production processing, quality control, delivery, sales, customer service and accounting processing.

The results of the preparation carried out on application requirements in organizations, currently, researchers formulate any portfolio needs in the application into a McFarlan strategic grid, and later the application is categorized into four matrix categories, namely: strategic matrix, key operational matrix, potential matrix height, and support matrix

CONCLUSION

The results of the strategic analysis that have been carried out for PhCo companies have been aligned with the form of the external environment and the form of the internal environment to overcome this, so businesses such as high products, high import tariffs for raw materials, a significant decline in import sales, and the Covid-19 outbreak. What is happening right now is a way for the company to survive.

Table 3. Pest analysis

Aspect	Remark
Political Analysis	- Indonesia's UUD no.23 of 1992 concerning health - Minister of health (Permenkes) no.571,572 regarding JKPM (Jaminan Pemeliharaan Kesehatan Masyarakat)
Economic Analysis	- Stable economic situation - positive economic growth, relatively low inflation - the world of health insurance is quite stable after the crisis - healthcare costs are rising higher than inflation - the pharmaceutical technology used to establish a diagnosis is expensive - increasing degenerative diseases cause high costs
Social Analysis	- public awareness about health - demographic and epidemiological transition - increasing chronic and degenerative diseases - an improved level of education and socioeconomics
Technology Analysis	- the development of the internet is very fast - open-source software - development of telecommunications technology

Table 4. Analysis information system

No	Information system name	User	App Function
1.	SAP (System Application Product) - Sales - Shipping - Management of materials - Planning of Production - Management of Quality - Accounting & Financial	- Promotor Division - Shipping Division - Logistic Division - Production Division - Finance Division	To make day to day easier activity in the process of recording data in real time and integrated according to respective authorities.
2.	Sunfish HR information system - attendance - employee salary - promotion - training	HR Department	To control employee absenteeism, to recap employee salaries, as a media for promotion of employees who will be promoted or moved departments, employee training history.
3.	Wonder Ware app	Production division	To control the production machine.
4.	Purchase request app	All employees in company	To make purchases of goods (such as office supplies).
5.	Company Website	Customers	As a promotional medium, to build a brand and reputation.

The business strategy that has been carried out is that this industry must change its strategy from the existing product differentiation strategy to an affordable and integrated cost. When the Differentiation Strategy is implemented by the company, it must be able to accelerate the development of Halal Products certified by the MUI by collaborating with the Government and local institutions in developing these Halal Products. When Cost

Leadership is implemented, the organization must be able to reduce existing expenditures from various imports of raw materials by collaborating with subsidiaries that can produce and obtain raw materials that can be used by PhCo and can increase the independence of the pharmaceutical industry when, increasing Synergy with BUMN, and reduce imports of raw materials.

Table 5 McFarlan strategic grid

STRATEGIC	HIGH POTENTIAL
Big data analytics a. Dashboard Business Intelligence (BI) b. Decision Support System (DSS)	Knowledge Management System (KMS) Business Model Platform a. Industrial Orchestration b. Omni Channel
Smart Stock POS: Pharmacies, Clinics, Laboratory a. Network integration b. clinical network, hospital, doctor	Office automation E-mail
KEY OPERATIONAL	SUPPORT

The Corporate Strategy that has been implemented by the company must be able to adopt a Diversification Strategy in its existing business processes in order to overcome various other important business issues regarding the decline in sales. When this company independently develops various other products that have high market potential,

it can also develop the Covid-19 Vaccine independently or with existing partnerships, has great potential, and creates various new business segments such as Blood Products, and others.

REFERENCE

- Andry, J. F., Liliana, L., Chakir., A. (2021). Enterprise Architecture Landscape using Zachman Framework and Ward Peppard Analysis for Electrical Equipment Export Import Company. Trends In Sciences. vol. 18, No. 19.
- Basri, K. H., and Suryani, E. (2018). Strategic Planning Information System for Improving Quality of Datu Sanggul Hospital in Rantau. IPTEK J. Proc. Ser., vol. 4, no. 1, p. 142. doi: 10.12962/j23546026.y2018i1.3526.
- Clement, H., and Swallow, D. S. (1995). Strategic planning for an information system., vol. 8 Pt 2.
- Geasela, Y. M., and Andry, J. F., (2019). Design Enterprise Architecture In Cpo Industry Using Togaf Adm Framework, ICTACT Journal On Soft Computing, Volume: 10, Issue: 01, pp. 2022-2027.
- Iman, N. and Hartono, J. (2007). Strategic Alignment Impacts on Organizational Performance in Indonesian Banking Industry,” Gadjah Mada Int. J. Bus., vol. 9, no. 2, p. 253. doi: 10.22146/gamaijb.5598.
- Koper, M. (2005). Strategic Planning for Information Systems who Really Needs It?. Issues Inf. Syst., vol. VI, no. 2, pp. 118–123. doi: 10.48009/2_iis_2005_118-123.
- Madyatmadja, E. D., Andry, J. F., and Chandra, A. (2020). Blueprint Enterprise Architecture In Distribution Company Using Togaf, Journal of Theoretical and Applied Information Technology Vol.98. No 12, pp. 2006-2016.
- Mohammad, R. I. A. (2017). Strategic Planning Of Sytem And Information Technology Based On Ward And Peppard (Case Study : State Junior High School 1 Waru Sidoarjo). Pros. Int. Conf. Inf. Technol. Bus., International Conference On Information Technology And Business (ICITB) 3, pp. 50–54.
- Pijpers, V., Gordijn, J., and Akkermans, H. (2008). Aligning information system design and business strategy - A starting internet company. Lect. Notes Bus. Inf. Process., vol. 15 LNBIP, pp. 47–61. doi: 10.1007/978-3-540-89218-2_4.
- Sampurna, A. L., Darmawan, A., and Nugroho, H. W. (2015). The Usage of Ward and Peppard Method in IS/IT Strategic Plan Compilation in Dishubkominfo East Lampung. Int. Conf. Inf. Technol. Bus., no. August, pp. 205–212. [Online]. Available: <https://media.neliti.com/media/publications/171459-EN-the-usage-of-ward-and-peppard-method-in.pdf>.
- Septiana, Y., Mulyani, A., Kurniadi, D., and Arifin, D. M. (2020). Information Systems Strategic Planning For Healthcare Organizations Using Ward And Peppard Model. Int. J. Sci. Technol. Res., vol. 9, no. 02, pp. 4718–4721.
- Setiawan, A., and Yulianto, E. (2017). Information System Strategic Planning Using IT Balanced Scorecard In Ward & Peppard Framework Model. Int. J. Eng. Technol., vol. 9, no. 3, pp. 1864–1872. doi: 10.21817/ijet/2017/v9i3/170903134.
- Sudarsono, B. G., Andry, J. F., Ranting, P. and Rahman, A. B. A. (2020). Redesign The Forwarding Company’s Business Processes Using The Zachman Framework, Journal of Theoretical and Applied Information Technology, Vol.98. No 16, pp. 3222-3232.

Tannady, H., Andry, J. F., Gunawan, F. E., and Mayseseleste, J. (2020). Enterprise Architecture Artifacts Enablers for IT Strategy and Business Alignment in Forwarding Services, *International Journal of Advanced Trends in Computer Science and Engineering*, Vol. 9, No.2, pp. 1465-1472.

Teramae, F., Makino, T., Lim, Y., Sengoku, S., and Kodama, K. (2020). International strategy for sustainable growth in multinational pharmaceutical companies. *Sustain.*, vol. 12, no. 3, pp. 1–14. doi: 10.3390/su12030867.