INFORMATION SYSTEM STRATEGIC PLANNING AT PT EP-TEC SOLUTIONS INDONESIA

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ABSTRACT

This research aimed to analyze the internal and external environment of business and information system /information technology (IS/IT), to identify current and future application portfolios, and to develop an Information System Strategic Planning to achieve the vision, mission, and objectives of PT EP-TEC Solutions Indonesia. The data were obtained from the results of interviews, observations, literature study, questionnaires, and analysis of the company's internal documents. Data were taken from interviewing and questionnaires that were ten managerial levels of 50 employees at PT EP-TEC Solutions Indonesia. The weight on the SWOT IFAS and EFAS matrix used a pairwise comparison method. The method applied descriptive method by using the Information System Strategic Planning framework from Ward and Peppard. The analytical tools used Porter's Five Forces, PEST, SWOT, Value Chain, IT Balance Scorecard, and McFarlan Strategic Grid. The results of this research indicate that future application portfolio recommendation that supports SI business strategies, IS/IT management strategies, and IT strategies that can help PT EP-TEC Solutions Indonesia in achieving strategic goals. From these results, it can be concluded that there are several proposals for applications, security tools, profiles of knowledge and skills, and recommendations for IS/IT infrastructure that can be applied in the company.

Keywords: *strategic planning information systems, Ward and Peppard, SWOT analysis, IT balance scorecard, application portfolio*

INTRODUCTION

Recently, most organizations in all sectors of industry, commerce, non-profit, and government basically depend on information systems and information technology (Peppard & Ward, 2016). An organization can run well supported by information systems and information technology strategies that are aligned with its business strategy so that the organization's goals can be achieved. The growth of information systems and information technology plays an important role in supporting business activities and organizational services by providing information that is fast, precise, and accurate so as to increase the effectiveness and efficiency of an organization's performance. This is felt by the PT EP-TEC Solutions Indonesia company as one of the leading companies in Indonesia that have been established since 2005 in Jakarta, and then grows and develops into the leading distribution company in Indonesia for high-end communication and technology devices that focus on marketing to the education and enterprise markets throughout Indonesia.

The strategic role of information systems in organizations is to improve operating efficiency, improve organizational innovation, and build strategic information resources (O'Brein, 2006). Information system strategic planning can be utilized by a company to expand market reach, align information systems, and information technology (IS/IT) with business, gain competitive advantage, increase commitment and communication with users, formulate business strategies and IS/IT, and

develop architecture information (Al-aboud, 2011). However, the company's perception of strategic information systems planning often only supports operational activities (Babafemi, 2015).

Problems that occur at PT EP-TEC Solution Indonesia today is the information presented to customers often incomplete and inaccurate even late given due to limitations in processing data analysis. Besides that, the absence of an integrated internal application that can meet the needs of employees at work, even though having an application a well-integrated and connected internal system that is expected to support the work of employees in processing and analyzing data, as well as increasing the company's added value. Then, strategic activities at PT Partial EP-TEC Solutions Indonesia is also still carried out by each area whose impacts are not integrated, so that integrated handling is needed in response to every information and service to customers. Referring to the problems that exist at PT EP-TEC Solutions Indonesia, Figure 1 shows the sales data that occurs from January to December 2018. If looking at the sales data, there is a decline in sales and also the unstable sales figures each month, which can result in reduced profits and company competitive advantage.

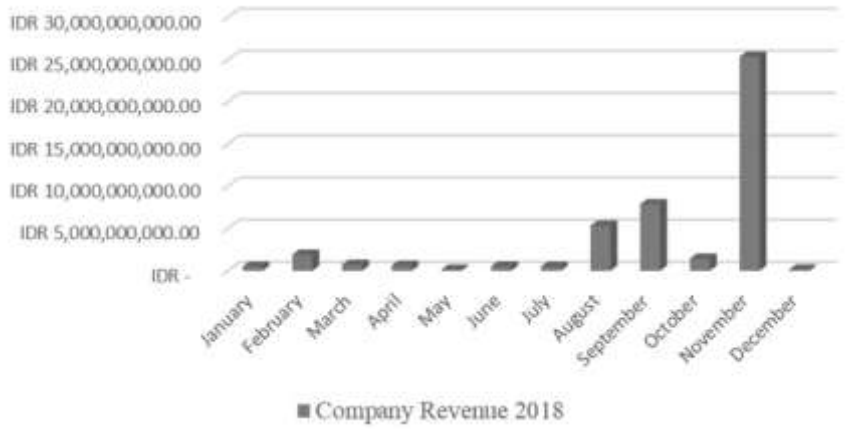

Figure 1 Company Revenue 2018

In 2018, EP-TEC Solutions Indonesia set a sales target of 150 billion, and the results of the achievement are still far below the sales target of 75 billion, then in 2019, the sales target is 200 billion. The target is expected to be achieved by implementing an appropriate information system strategy. PT EP-TEC Solutions Indonesia requires an information system strategic planning that can optimize performance from business processes, sales processes, logistics processes, and service/repair processes for the technology and communication device market. With the existence of a new and integrated strategic planning information system, the company's operational activities can be more organized, fast, flexible, in order to increase company revenue and competitive advantage in the information and communication technology industry.

Information Systems (IS)/Information Technology (IT) capability has been interpreted to have the ability to influence the success of companies in reviewing the sizes, types, goals, and structures of their organization (Khani, Nor, & Bahrami, 2011). The strategic planning of information systems and information technology made by this author refers to the journal written by Sampurna, Darmawan, & Nugroho (2015). Based on the methodology approach of Ward and Peppard, analysis is carried out on the internal and external environment of PT EP-TEC Solutions Indonesia, and also see the current condition of IS/IT to produce an application portfolio that is in line with the business strategy of PT EP-TEC Solutions Indonesia.

METHODS

The methods used in this research are in accordance with John Ward and Joe Peppard's information system strategic planning analysis. In this research, some analyses categorized based on the input and output steps, according to Ward and Peppard, are carried out. An important factor in the IS/IT strategic planning process is the use of the methodology. The methodology is a collection 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 dependence, and emphasize the process and targets specified. The Ward and Peppard version of the methodological approach starts from the condition of investment in IS/IT in the past that is less useful for the organization's business objectives and captures business opportunities; and the phenomenon of increasing the competitive advantage of an organization because it is able to utilize IS/IT to the full. Less useful IS/IT investment for organizations is due to IS/IT strategic planning that is more focused on technology, not based on business needs.

Figure 2 shows the research framework used by companies to make IS/IT strategic planning that is proposed by Ward and Peppard with the planning model.

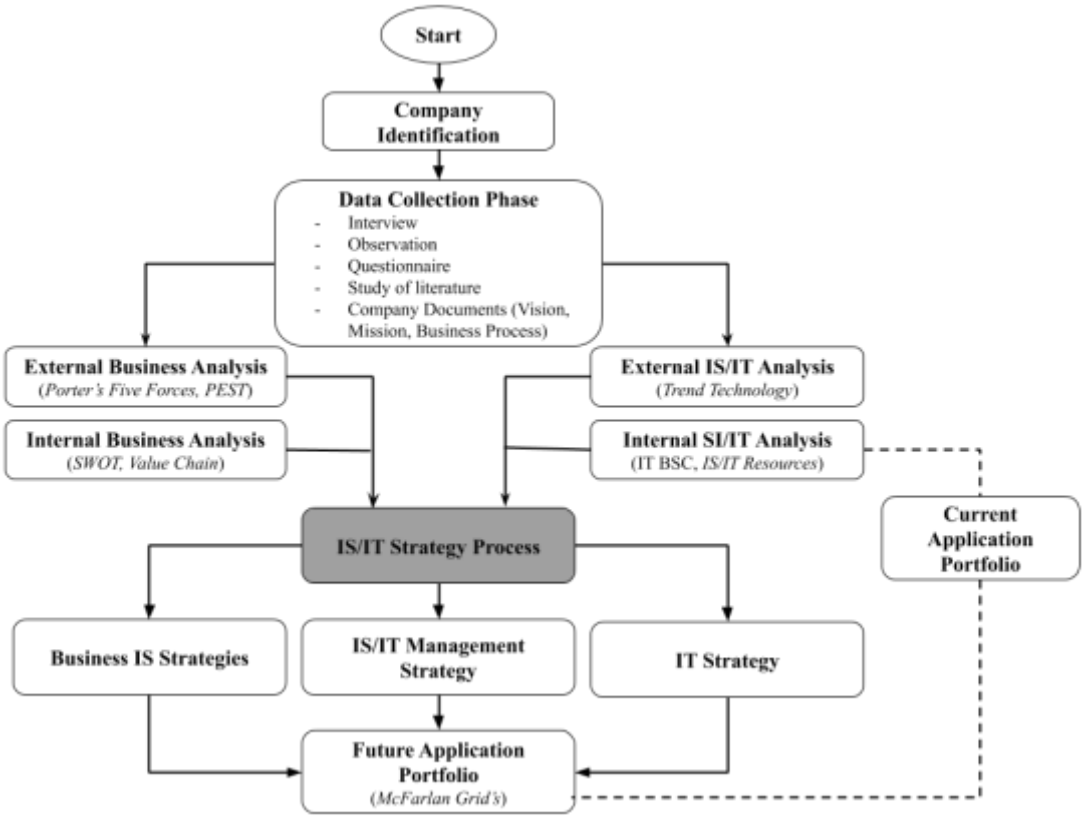

Figure 2 Research Framework
(Peppard & Ward, 2016)

From Figure 2, it can be seen that IS/IT planning is divided into two important components, namely input and output. The input stage consists of; first is the analysis of the external business environment at PT EP-TEC Solutions Indonesia includes several external factors that influence the company's business strategy. External factors can be seen from opportunities and threats for the company. This analysis uses the analysis of Porter's Five Forces and PEST. The second is the analysis

of the internal business environment at PT EP-TEC Solutions Indonesia from an internal side that influences the company's business processes and corrects the company's internal weaknesses so that it does not become a threat later. This analysis uses SWOT analysis and Value Chain analysis. SWOT analysis is defined for internal factors, such as company strengths and weaknesses, by using the IFAS table (Internal Strategic Factors Analysis Summary). The external business analysis consists of SWOT analysis that is defined for external factors, such as company opportunities and threats, using EFAS tables (External Strategic Factors Analysis Summary). To conduct a SWOT analysis, it needs to be built with full awareness and supportive situations of strategic planning and decision making (Holt & Wolff, 2015). The third is an analysis of the internal environment of IS/IT consists of IT BSC (IT Balanced Scorecard) and infrastructure. IT BSC defines and measures the performance, strategies, and activities of the company based on the perspective of company contributions, user orientation, operational improvements, and future orientation (Swierk & Mulawa, 2014). This is useful to compare with the IS/IT needs that are needed in achieving the vision and mission so that conclusions are needed to increase the IT needed by PT EP-TEC Solutions Indonesia. In addition, a portfolio analysis of the current application will be carried out regarding the applications that the company currently uses by using McFarlan's Strategic Grid. And the last is an analysis of the external environment of IS/IT is external factors that can influence strategic planning. For example, with the current technological trend where developing technological developments must also be appropriate and can support ongoing business. Even for cloud computing, technology is already familiar to all of them so that the development of applications for technological trends can be developed.

While the output stage is a part that is done to produce an IS/IT strategic planning document whose contents consist of: (1) After all the analyses have been carried out, the information will be obtained to do the formulation of the IS/IT strategy which includes the SI Business strategy. At this stage of the SI Business strategy is the way in which information systems are utilized in supporting every business activity that is related to the company's vision and mission. Moreover, explain various problems that will be made a solution, so that the solution can be implemented. The results of the SI strategy are in the form of application recommendations that are proposed to be implemented so that the problems found in the company can be resolved properly and become a tool to achieve its vision and mission. (2) The stages of the IS/IT management strategy can design a strategy, which can produce new policies by top management related to information technology. It will be implemented by the company, where the policy can be in the form of utilization of company resources in the form of improving the quality of human resources by increasing knowledge and skill. (3) At the IT strategy stage where this strategy is useful to find out how IT can be utilized in supporting the achievement of vision and mission, and the main business processes that exist in the company. This IT strategy is in the form of software, hardware, application platforms, and network topologies that are useful to support the SI strategy that has been analyzed previously. (4) Future application portfolios are needed to describe each requirement of the recommended application for the company after analyzing the internal and external environment of the business. The application portfolio is also useful as a basis for identifying the company's needs for software and hardware in the future.

Some analytical techniques used in IS/IT strategic planning in this methodology include SWOT analysis, Five Forces Porter analysis, Value Chain analysis, IT Balanced Scorecard, and McFarlan's Strategic Grid. The method to be used in this research is a qualitative method that aims at what IT targets, and the business objectives to be achieved over the next three years, which are then analyzed by the theory of IS/IT strategic planning. The data collection carried out in this research is through a questionnaire and interview. Besides that, the researcher makes observations directly into the company. Observation is carried out in order to be able to find out how the business process is running from the business unit in the company and also to get the information needed. Data collection is carried out through literature and reference books related to research to support the writing of this research. Besides that, the researcher also needs supporting data contained in company documents, which include vision, mission, organizational structure, and business processes that exist within PT EP-TEC Solutions Indonesia.

RESULTS AND DISCUSSIONS

In preparing IT Strategic planning, an analysis of existing business needs is needed in order to assess and evaluate the existing system, so that conclusions can be given to provide recommendations for the proposed system. Analysis of the internal business environment is carried out to identify the extent to which the company can evaluate things that need to be improved or developed and even used as an opportunity to build the company further so that it can increase the company's competitive advantage. The analysis of the value chain will describe the activities carried out by EP-TEC Solutions Indonesia. The main activities and supporting activities to be identified in the business area can be seen in Figure 3.

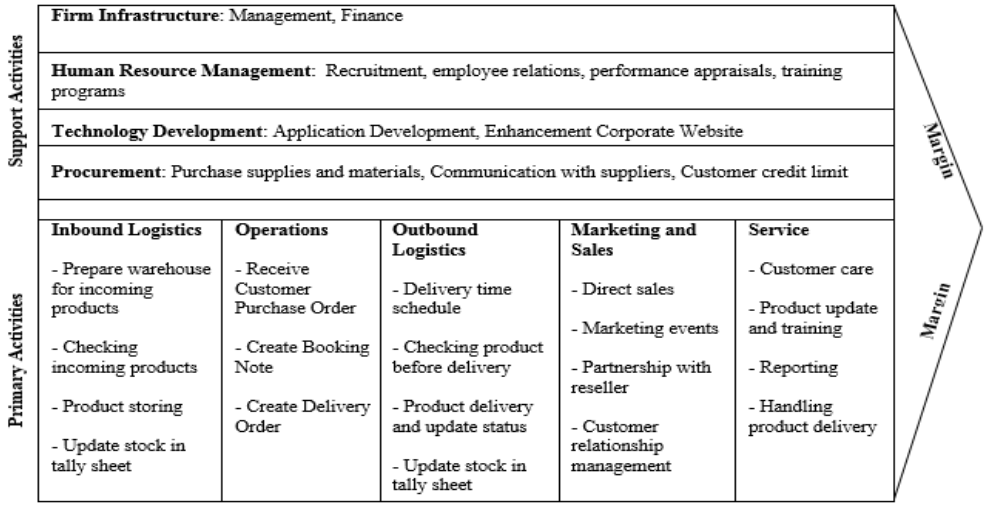

Figure 3 Value Chain Analysis of PT EP-TEC Solutions Indonesia

SWOT analysis is conducted to describe the environmental conditions in EP-TEC Solutions Indonesia, both internal (strengths and weaknesses) and external (opportunities and threats). This aims to assist in determining the objectives and objectivity of the company within the next three years so that it can carry out efficiency and effectiveness in maintaining the company's competition. The results of the identification are compared to maximize internal factors of strengths and opportunities and minimize external factors of weaknesses and threats of a company that can be seen in Table 1 and Table 2.

Table 1 Internal Factors

Strength	Weakness
S1. Company reputation	W1. Operational activities are not optimal
S2. Customer based from various industries	W2. The IT governance mechanism is still not good enough
S3. Diversity of portfolio products	W3. The high turnover rate and knowledge sharing have not been maximized
S4. Management support for IT development	

Table 2 External Factors

Opportunity	Threats
O1. The rapid growth of IS / IT in the world	T1. Politics and Social Affairs
O2. Increased Internet use in Indonesia	T2. New technology used by competitors
O3. Have the opportunity to expand market share with technology that has been mastered	T3. Skill limitations in the IT division

IFAS matrix (Internal Strategic Factors Analysis Summary) and EFAS (External Strategic Factors Analysis Summary) are presented to evaluate and calculate the results of analysis of internal and external factors that will be compared to determine the current position of the company and the strategies the company will use in implementing the project (David, 2011). The weight on the matrix uses a pairwise comparison method. The IFAS matrix can be seen in Table 3, while the EFAS matrix can be seen in Table 4.

Table 3 IFAS Matrix

Code	Strength	Weight	Rating	Value
S1	Company reputation	0,062	3	0,186
S2	Customer based from various industries	0,059	4	0,236
S3	Diversity of portfolio products	0,044	4	0,176
S4	Management support for IT development	0,215	3	0,645
	Subtotal Strength			1,243
Code	**Weakness**	**Weight**	**Rating**	**Value**
W1	Operational activities are not optimal	0,177	4	0,708
W2	The IT governance mechanism is still not good enough	0,264	3	0,792
W3	The high turnover rate and knowledge sharing have not been maximized	0,180	3	0,540
	Subtotal Weakness			(2,040)
	TOTAL (S-W)	1,000	-	(0,797)

Source: David (2011)

Table 4 EFAS Matrix

Code	Opportunity	Weight	Rating	Value
O1	The rapid growth of IS / IT in the world	0,184	3	0,552
O2	Increased Internet use in Indonesia	0,262	4	1,047
O3	Have the opportunity to expand market share with technology that has been mastered	0,050	4	0,198
	Subtotal Opportunity			1,797
Code	**Threats**	**Weight**	**Rating**	**Value**
T1	Politics and Social Affairs	0,196	2	0,392
T2	New technology used by competitors	0,039	1	0,039
T3	Skill limitations in the IT division	0,270	1	0,270
	Subtotal Threats			(0,701)
	TOTAL (S-W)	1,000	-	1,096

Source: David (2011)

Based on the calculations for the Amateur IFAS and EFAS, as can be seen in Table 3 and Table 4, it can be determined at the point (X; Y) on the SWOT diagram, where X points show the number -0,797 while the Y point shows the number 1,096 that can be seen in Figure 4. These results indicate that EP-TEC Solutions Indonesia is located at the coordinates (-0,797; 1,096), which is in quadrant III. It means that supporting companies to carry out Turn-Around strategies, where EP-TEC Solutions Indonesia has a large opportunity but is still hampered by several obstacles on the internal side. Based on the analysis conducted, it shows that actually, the condition of EP-TEC Solutions Indonesia is quite good, but still needs to be improved and improved on the internal side so that the results achieved can be more optimal in achieving its business objectives.

Through an analysis of the strengths, weaknesses, opportunities, and threats faced by PT EP-TEC Solutions Indonesia, it will be spelled out the SWOT matrix that integrates the factors in the IFAS matrix with the factors in the EFAS matrix. The matrix will be a strategy formula for PT EP-TEC

Solutions Indonesia to be able to take advantage of all the strengths and opportunities that exist so that weaknesses and threats that may occur can be minimized and appropriately handled. The SWOT matrix obtained can be seen in Table 5. Based on the SWOT matrix in Table 5, the strategies that will be carried out by PT EP-TEC Solutions Indonesia has a W-O strategy, namely a strategy on how to utilize the company's external strengths to maximize the opportunities that exist. Mapping the W-O strategy, IS/IT needs, and IS/IT support needed by PT EP-TEC Solutions Indonesia is helping to realize this strategy that can be seen in Table 6.

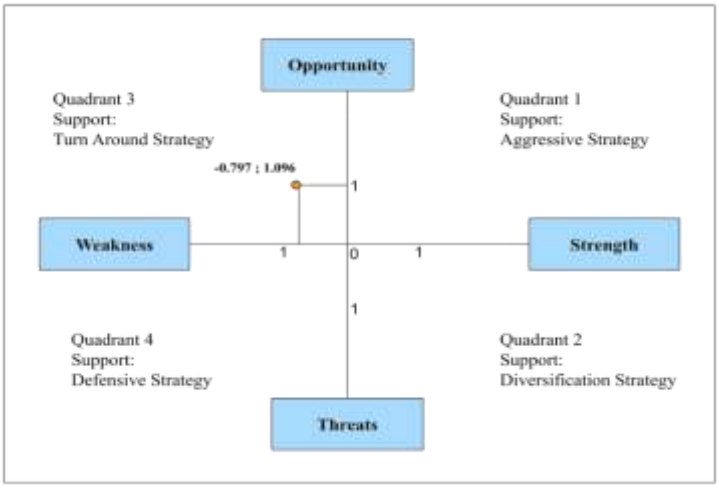

Figure 4 SWOT Diagram

Table 5 SWOT Matrix

IFAS / **EFAS**	***Strengths* (S)** S-1: Company reputation S-2: Customer based from various industries S-3: Diversity of portfolio products S-4: Management support for IT development	***Weaknesses* (W)** W-1: Operational activities are not optimal W-2: The IT governance mechanism is still not good enough W-3: The high turnover rate and knowledge sharing have not been maximized
***Opportunities* (O)** O-1: The rapid growth of IS / IT in the world O-2: Increased Internet use in Indonesia O-3: Have the opportunity to expand market share with technology that has been mastered	**S-O Strategy** • Maximize good communication to expand market potential • Utilizing employee competencies to develop solutions and product services according to technological developments	**W-O Strategy** • Company website optimization • Develop the Decision Support System (DSS) application • Building a Knowledge Management System (KMS) • Building Customer Relationship Management (CRM)
***Threats* (T)** T-1: Politics and Social Affairs T-2: New technology used by competitors T-3: Skill limitations in the IT division	**S-T Strategy** • Manage and improve IT security standardization • Focusing on one technology only • Expanding market segments Develop new products and solutions	**W-T Strategy** • Optimization of IT devices • Knowledge Management System With the resources that are owned, it is expected to be able manage the project better

Table 6 Mapping of W-O Strategy, IS/IT Needs, and IS/IT Support

W-O Strategic Mapping	IS/IT Needs	IS/IT Support
Improve the performance of the company's IS / IT infrastructure to support business processes, including application development	• There is a system that supports the company's business processes as a whole, both the process of accepting new projects, receiving service improvements, and implementing the project itself, as well as the process of sharing resources in the project • The existence of a system that can support the improvement of employee competencies and knowledge in implementing projects including online learning.	KMS (Knowledge Management System)
Enlarge the number and scope of the project by developing marketing networks	• There is a system that can identify the products and solutions needed by other companies. • There are applications that help increase company sales	• Company website • CRM (Customer Relationship Management)
Improve excellent service to customers	There is an application that can provide input in decision making	DSS (Decision Support System)

Political, Economic, Social, and Technology Analysis (PEST) can take points from the SWOT analysis described so that between PEST analysis and SWOT analysis can be interconnected. This PEST analysis is an analysis used to identify external environmental factors that affect the business process of EP-TEC Solutions Indonesia so that it can be used as a reference for companies to measure themselves to what extent EP-TEC Solutions Indonesia can keep up with the development of the IT industry in Indonesia. These factors consist of politics, economics, social, and technology. By evaluating and recognizing external opportunities and threats, the company will be able to develop its vision and mission as the basis for the right strategy to achieve long-term targets.

Analysis of five forces porters is done to see the competition map that exists in the company's business and see the extent of the influence of competition between new entrants, substitute products, supplier bargaining power, and bargaining power of customers towards the company's business continuity. Analysis of five forces porters can be seen in Figure 5.

Based on the performance analysis of current IS/IT EP-TEC Solutions Indonesia on strategic objectives, it is measured by four BSC IT perspectives, both through interviews, questionnaires, and data observations. The achievement outcome categories with the weight values that will be used in this evaluation are:

- 0% - 54% : Very bad
- 55% - 64% : Bad
- 65% - 74% : Enough
- 75% - 84% : Good
- 85% - 100% : Very good

In the company contribution perspective, the instrument for measuring % of the project implementation process using applications is by observing data and interviewing. The list of questions asked in the interview is, "How many EP-TEC Solutions Indonesia projects have the implementation process using the application?" From the information obtained, there are 70% of the implementation process using the application.

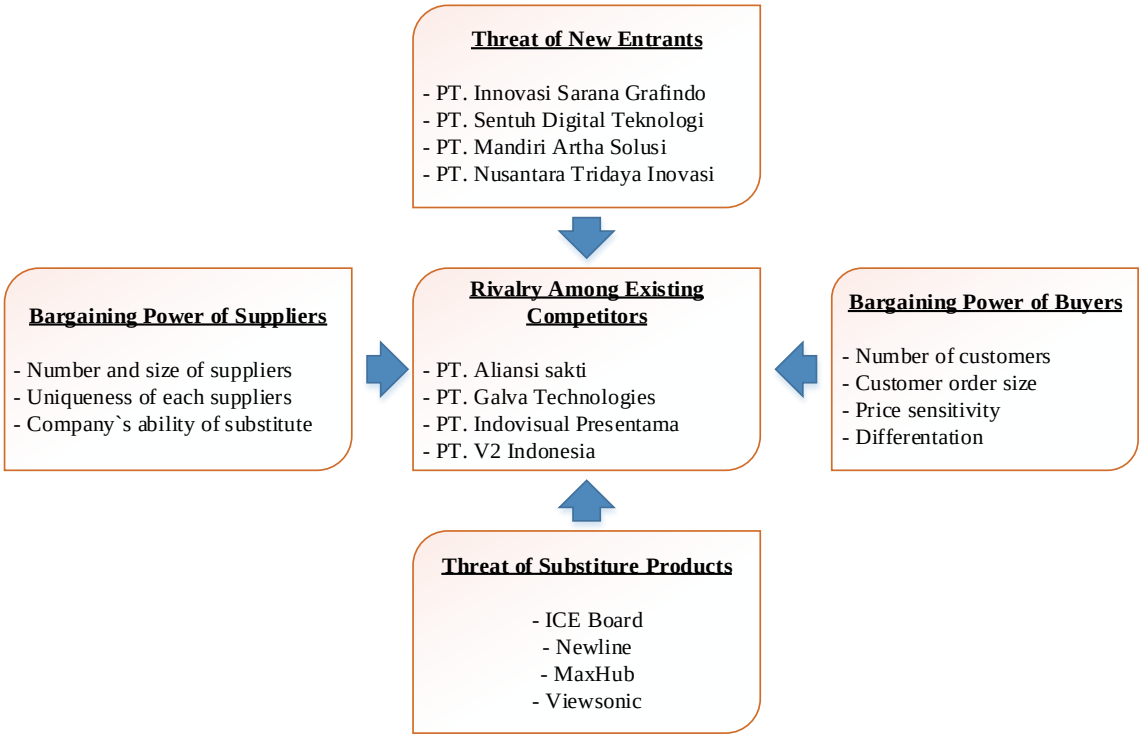

Figure 5 Porter's Five Forces

In the user orientation perspective, it needs to increase user satisfaction. % level of suitability of application performance to the user's business needs. Measuring instrument % the level of appropriateness of application performance to the user's business needs, namely by distributing questionnaires. The lists of questions submitted in the questionnaire are:

1) What is your level of satisfaction with the solution provided?
   a. Very satisfied (the solution provided is able to solve all problems in the long term)
   b. Satisfied (the solution given is able to solve the problem you are asking)
   c. Good enough (the solution give n is only able to solve some problems)
   d. Not satisfied (application performance does not meet the user's business needs)
2) How long do you need to access functions in a business application?
   a. Very Fast (≤ 3 seconds)
   b. Fast (3-6 seconds)
   c. Slow (7-10 seconds)
   d. Very Slow (≥ 11 seconds)
3) How long does it take for the IT Division to respond and provide a solution to the problem you are asking?
   a. Very Fast (≤ 1 day)
   b. Fast (2-3 days)
   c. Slow (4-5 days)
   d. Very Slow (≥ 6 days)

The information in Table 7 shows that the measurement results are the level of suitability of the application's performance against the user's business needs, namely: (80% * 0,33) + (80% * 0,33) + (82,5% * 0,33) = 80,83%. In the operational improvement perspective of % level of availability of internal company applications, the instrument for measuring% the level of availability of software in the company is by distributing questionnaires. The list of questions submitted in the questionnaire is:

(1) What is the level of availability of internal company applications in supporting business processes?
   a. Very Complete (The company has internal applications that support all existing business processes)
   b. Complete (Companies have internal applications that support key business processes)
   c. Quite Complete (Companies only have internal applications that support certain business processes)
   d. Incomplete (The company does not have an internal application)

(2) Has the company's internal application met your needs?
   a. Very Satisfying (≥ 85% of the company's internal applications are very fulfilling all your needs in carrying out daily work)
   b. Fulfill (50% - 84% of the company's internal applications meet your overall needs)
   c. Fairly Satisfied (26% - 49% of the company's internal applications meet some of your needs, but there are still some needs that have not been met)
   d. Not fulfilling (≤ 25% of the company's internal applications do not meet your needs at all)

Table 7 Measurement Data Level of Conformity of Application Performance to Users' Business Needs

Question Number	Answers				Total
	A (Score 4)	B (score 3)	C (score 2)	D (score 1)	
1.	3	6	1	0	23/40 = **80%**
Result No. 1	12	18	2	0	
2.	2	8	0	0	32/40 = **80**%
Result No. 2	8	24	0	0	
3.	3	7	0	0	33/40 = **82,5%**
Result No. 3	12	21	0	0	

Table 8 Results of Measurement of the Availability of Company Internal Applications

Question Number	Answers				Total
	A (Score 4)	B (score 3)	C (score 2)	D (score 1)	
1.	3	6	1	0	23/40 = **80%**
Result No. 1	12	18	2	0	
2.	2	8	0	0	32/40 = **80**%
Result No. 2	8	24	0	0	

From the information in Table 8, it shows that the results of the measurement of the level of availability of the company's internal applications, namely: (80% * 0,5) + (80% * 0,5) = 80%. According to the future orientation perspective, % Improve employee competency in measuring instrument% frequency of employee training, namely data observation and interviews. The list of questions asked in the interview are:

(1) What is the frequency level of training held for employees in a year? From the information obtained, it is known that the frequency of training held for employees is around two times a year. So that the measurement results obtained are 50% (Table 9).

(2) What is the frequency level of the development of a company's information system? From the information obtained, it is known that the company carries out information system development every year so that the measurement results obtained are 100% (Table 9).

The results of the final achievement of the performance of the IT Division EP-TEC Solutions Indonesia with 4 BSC IT perspectives can be seen in Table 10.

Table 9 Results of Measurement of the Availability of Company Internal Applications

Strategic Measurement	Strategic target	Measurement results	Achievement
(%) frequency of employee training	2 times a year	1 time a year	50%
(%) the frequency of IS development	2 times a year	2 times a year	100%
Total			150%
Average			75%

Table 10 Results of Achieving the End of the Performance of the IT Division

Perspective	Strategic Objective	Measurement Results	Category
Company Contributions	Contribution of IT functions	70%	Enough
	Average	70%	Enough
Orientation	Increase user satisfaction	80%	Good
	Develop User capacity	80%	Good
	Developing cooperative relationships with Users	82.5	Good
	Average	80,83%	Good
Internal Process	The time period for making a price quote from each sales team	80%	Good
	The time period for issuing POs for the procurement of goods and services from procurement to suppliers	80%	Good
	Average	80%	Good
Future Orientation	Actualization between training planning, taking certification	50%	Very Good
	Actualization in the IS development	100%	Very Good
	Average	75%	Good
Total		317,50	
Overall average		79,37	Good

IT Balanced Scorecard analysis is used to evaluate the performance and contribution of IT to EP-TEC Solutions Indonesia so that it can provide understanding to businesses regarding IT performance and can optimize existing IS/IT. This evaluation begins by aligning the company's vision and mission, and strategy with vision; IT mission, and strategy. After that, an IT Strategic Map is arranged, which is divided into four perspectives that are then determined by strategic measures, targets to be achieved, and recommendations for initiatives to improve the effectiveness and efficiency of EP-TEC Solutions Indonesia. The recommendations of BSC IT initiatives and IS/IT support are determined based on conclusions from the final achievement results in the previous sub-chapter, which can be used to improve the performance of the IT EP-TEC Solutions Indonesia division.

At present, the business strategy that is being focused by PT EP-TEC Solutions Indonesia is how to increase sales by presenting complete and accurate information to customers and improving the company's internal activities to achieve service excellence. The business strategy recommendations of the SI needed by PT EP-TEC Solutions Indonesia are, the first is Decision Making System, or DSS is a web-based application that plays a role in supporting and assisting management in making decisions in certain conditions by providing various alternative solutions. This application aims to increase the effectiveness and support of decisions taken, and overcome limitations and problems in data processing and storage. With this application, companies can simulate financial calculations and recruit prospective employees according to company criteria. This is intended so that top-level management can find out the problems and needs of the most influential companies, and prioritize strategies and steps to be taken. The second is based on the results of the analysis that has been done previously; it is known that EP-

TEC Solutions Indonesia needs to build an application for knowledge sharing. This application aims to improve the company's knowledge management. With the implementation of KMS in EP-TEC Solutions Indonesia, it is expected that the implementation of organizational activities in managing knowledge as a very important asset. In various strategies, there is the distribution of the right knowledge to the right people in a fast time so that they can interact with each other, share knowledge, and apply it in daily work to improve organizational performance. All these problems and needs can certainly be answered and resolved by the existence of KMS applications so that this initiative can help in the human resource section in terms of knowledge management; therefore, EP-TEC Solutions Indonesia requires a KMS application.

The third is Customer Relationship Management (CRM). One of the current problems that occur related to customers is the absence of a system that can manage relationships with customers. To create customer satisfaction, EP-TEC Solutions Indonesia must create and process a system to obtain more customers and also has the ability to retain loyal customers. Along with current technological developments, especially cloud technology, it is already many other companies that provide CRM that has been collaborated with cloud technology or Software as a Service (SaaS). Given the many benefits obtained from these technologies, therefore, this Cloud-CRM solution will be able to answer these problems.

CONCLUSIONS

Based on the analysis, then the mapping of the future application portfolio will be carried out as a whole in PT EP-TEC Solutions Indonesia using the McFarlan Strategic Grid analysis. The recommendations for future applications portfolio includes (1) Strategic; application recommendations are included in this quadrant, namely KMS. The application is planned to facilitate independent learning and the discussion process in the forum. (2) High Potential; the recommended applications are included in this quadrant are CRM applications to support service quality in facilitating customer complaints, and DSS is recommended to support the quality of decisions taken. (3) Key operational; the company can apply office applications, company's shared folder, web-based odoo sales, and office instant messenger application. (4) Support; company website, multimedia application, network design application. After obtaining recommendations from the results of the analysis carried out, a schedule for the implementation of the proposed IS/IT is made. Therefore, the planning schedule for the implementation is compiled at PT EP-TEC Solutions Indonesia within the next three years (2019 - 2021).

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