STRATEGIC PLANNING OF INFORMATION SYSTEMS IN PT KAYU LAPIS INDONESIA

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ABSTRAK

PT Kayu Lapis Indonesia is a leading company with more than four decades of experience in the field of sustainable forest management with an integrated timber industry that already apply information systems management. Existing information systems developed by IT departments that exist in the company. Currently the company has a system of information that has been developed by internal parties for the operation of corporate transactions, such as for logistic and finance needs. But there has been no support system for the other divisions. Such a system capable of providing information related to forest management such as land clearing, seeding, harvesting, and mapping of forests managed by the company. One problem that often arises in the field that such a report for monitoring the level of production, the number of trees that have been felled in the day, diameter, volume, and others associated with production activities to be slower due to the manual recording. So we can say that the use of IS / IT within the company is not optimal. According Manuputty and Wijaaya (2013) that the use of the IS / IT strategic planning needed to be optimal information systems. It is therefore necessary to make a planning strategy for the use of information systems / IT becomes more optimal to support or improve the performance of the company

Keywords: Strategic Planning, Ward & Peppard, Information Systems

1 INTRODUCTION

According to Wibowo (2012), In the current era of information system development, the role of information systems is needed for the company, not only serves as a supporter in business activities, but become a mainstay tool in increasing productivity to be able to increase profits and can achieve corporate vision and mission .

According to Widiati, et al (2015), Information system is also referred to as strategic weapon (strategic weapon) or competitive weapon (competitive weapon), which is able to be used as a powerful tool to compete. The information system within the company is also used to maintain the company's position and increase its competitive advantage.

According to Wibowo (2012), For a company, having a business strategy alone is not enough, companies need to develop a business strategy that is equipped with strategic planning in information systems in order to utilize the function of better information system to support business activities within the company.

According to Laudon and Laudon (2012), the company is considered to achieve a competitive advantage if the company has achieved one or more of its business objectives particularly in operational excellence, customer relations and improved decision-making quality. Do something better than a competitor that can not be followed by Competitors that competitive advantage. One way to achieve it by using information systems to achieve its goals. The case study used for writing this thesis is PT.Kayu Lapis Indonesia. The company is engaged in an integrated timber and timber processing industry that has grown for approximately 40 years.

Currently, the company already has an information system that has been developed by internal parties that are used for corporate transaction activities, such as for logistics needs and finance needs. But there is no support system for other divisions. Such a system is able to provide information related to forest management such as land clearing, seeding, logging, and forest mapping managed by the company. One of the problems that often arise in the field such as reports for monitoring the level of production, the number of trees that have been cut in a day, diameter, volume, and others associated with production activities to be slower because the recording is still manual. So it can be said that the use of SI / IT within the company has not been done optimally. According Manuputty and Wijaaya (2013) for the use of SI / IT to be optimal required strategic planning of information systems. Therefore need to be made an information system strategy planning for the use of SI / IT become more optimal that can support or improve company performance.

2 RELATED STUDY

According to Hendraputra (2014), the strategy comes from the Greek, the "Strategia" which means the general or common. a strategy based initially on the military, which then developed to cover the scope of deploying. Strategy becomes a method for connecting between the current situation with the ultimate goal to be achieved. Then, According to Kris (2015), a strategic planning process undertook an organization to determine the strategy or direction and making decisions to allocate resources (including capital and human resources) to achieve a predetermined strategy.

There are previous research conducted about strategy planning. Research conducted Hudiarto, et al (2011), discusses the benefits of investment SI/IT is running (lights-on) and project application system on PT Nuance Aspiration Bening in Jakarta. Issues discussed in the study whether investment SI/IT that is aligned with the direction of corporate strategy and whether costs incurred in proportion to the benefits and positive impact on bottom-line. The final results of these studies require the development and progression to multiple applications, infrastructure, services and management of lights-on in order to achieve and maintain the strategic direction of the company.

Research conducted by Widiati, et al (2015), discusses the strategic information systems in the case of integrated Islamic school Salman Alfarasi in Yogyakarta. The study mentions that if able to use information systems to the maximum can achieve a competitive advantage. Ward & Peppard combination framework and Enterprise Architecture Planning a reference in the study and analysis tool used is the value chain, PEST, SWOT and McFarland Strategic Grid. The result of the study are strategic information systems and information systems portfolio recommendations.

Haron, et al (2013), discusses the strategic information systems in the case of Small and Medium Enterprise (SME) in Malaysia. The study uses Framework Ward & Peppard and used for the analysis are the value chain and Porter's five forces. The study results in strategic information systems that can enhance the competitive advantage of SMEs in Malaysia.

Kawangung, et al (2015), discusses the strategic information systems with case studies is the office of women's empowerment and family planning in the district Anambas. The study uses a framework, Ward and Peppard. The analysis tool used is PEST, CSF, SWOT, Value Chain and McFarlan Strategic Grid. The result of the research is the strategic planning of information systems in the future.

Chandra (2016), discusses the strategic information systems with case studies Universitas Nusa Nipa (UNIPA) in the province of East Nusa Tenggara. The study states that to enhance the competitive advantage necessary strategic business plan and the strategic plan of IS/IT. The study uses a framework, Ward and Peppard. The analysis tool used is PEST, CSF, SWOT, Porter, Value Chain and McFarlan Strategic Grid. The results of this research is a strategic planning / IT as a guideline for management in determining the development and management of IS/IT in UNIPA.

3 METHOD

The framework used in this study was Ward and Peppard. Figure 3.1 shows the framework.

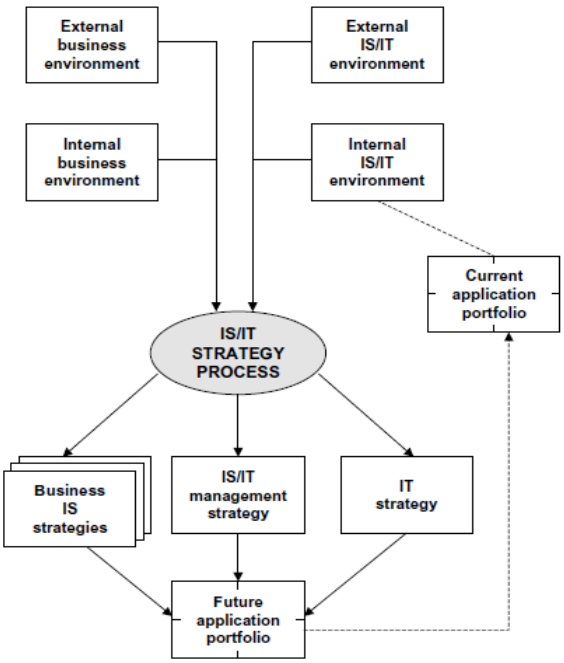

Figure 1 Framerwork Ward & Peppard

The explanation of the steps to be taken in the preparation of the strategic planning of information systems is as follows:

1) Part of the company's internal and external analysis of the company does not need to be done and in their place a corporate strategy
2) External Analysis SI
   SI external assessment conducted aiming to get the viewpoint of related companies SI outside teknlogi trend that is happening today. The data obtained in this analysis of technology trends that exist today. Technology trends derived from the observation of the writer and literature studies.
3) Analysis of internal SI
   SI internal analysis conducted aimed at identifying the internal conditions of the SI in the form of an information system used today, IT asset and network infrastructure companies. The data obtained from interviews. Interviews were conducted to SIMPH who knows very well about the information systems in use today.
4) Information Systems Strategy
   Strategy defines the need for an information system to support the entire process of firms that exist within the company in the form of information systems. Recommended information system should be capable of supporting the entire process within the company. The results of the information system strategy that is proposed - the proposed information systems or information systems along with a roadmap on information systems that will be developed within the company so that it can help the company to gain a competitive advantage or a means for companies to achieve the vision and mission that has been determined.
5) Information Technology Strategy
   Information technology strategy is used to determine how an information system can be supported by information technology in meeting the needs of information. Results of this information technology strategy in the form of suggestions and proposals computer network hardware to support information systems strategy that has been proposed before.

6) Management Strategy / IT
   Strategy management / IT is useful to formulate how to meet the human resource to support the strategy of IS / IT has been proposed previously.
7) The next application portfolio
   Portfolio information system proposed is in the form of a blue print on the application. The blue print is an application of the recommendations that will be used in the future to support competitive advantage.

4 ANALYSIS AND DISCUSSION

Research carried out on one of the subsidiaries of PT. Kayu Lapis Indonesia. The management committed to sustainable forest management by not only see the production aspect only consider this but also social and cultural aspects as well as the environment that is around.

4.1 Corporate Strategy

Here is the strategy of the company which has been obtained by the authors for the use of wood-based forest products environmentally friendly (Reduced Impact Logging):

1. **Forest Planning**, creating boundaries of the work area, consists of: make appointment boundaries bracelet, creating a block boundary CTR, create a working plot boundaries, creating a boundary subplot work, and create a buffer zone. Make an inventory of stands before logging activities consist of: survey topography (contour) and survey of trees (tree distribution map). Survey Rill, such as: determining the location of landings, and making the skid trail plan.
2. **Forest Opening,** activities - activities undertaken at this stage are: (a). Making the bridge in accordance with standard procedures such as streams that are not clogged by garbage - garbage timber and other materials; (b) Road maintenance - Logging roads in perkeras and regularly maintained to be able to reduce the soil erosion; (c) The opening of skid trails and landings.
3. **Procurement of seedlings, planting and maintenance of plant**.
4. **Harvesting,** activities - activities carried out at the time of harvesting, namely: logging, and skidding.
5. **Post-Harvesting**, activities - activities carried out during the post-harvest: overlays the top soil on the former TPN, deactivation of roads and diversion, the process of grading and marking log, and the process of loading the result of logging onto barges.

4.2 Analysis of External Environment IS/IT

Analysis of the external environment / IT is based on current technology trends. Based on current trends the authors observations associated with today's technology is the smartphone. Nowadays, almost everyone has a smartphone. Smartphones are not only used as a means of communication such as telephone and sms but has also been equipped with a variety of interesting features and specifications. In the corporate environment today also from observations of the writer everyone has a smartphone, even one person can have more than one smartphone.

According kominfo.go.id, smartphone users in Indonesia has grown rapidly and is expected in 2018 the number of active smartphone usersdiIndonesia will reach more than 100 million people. Therefore, the author will use the smartphone phenomenon for the strategic planning of information systems in the enterprise. By utilizing the smartphone, the authors plan to propose making of web-based information systems in the company mobile. The system is aimed at users who often work outside the office. Those who work outside the office can not always be in front of your laptop or computer. So to make it easier for the user in the daily work the author would like to propose the mobile web. As for what features will be developed, will be discussed in the information systems strategy.

4.3 Analysis of Internal Environment IS/IT

At this stage, the analysis of the internal environment of the IS/IT has been running and is used in the company. This stage starts from the portfolio of applications to network infrastructure conditions used in the company. The current application:

1) logistics information system
2) a system of accounting and finance information
3) the information system cost and budgeting
4) human resource information system

Tabel 1 Aset Hardware TI

Type	Spesifikasi	Jumlah
CPU	Core 2 Duo, 2 GB RAM, 250 HDD	19
	Dual Core, 2 GB RAM, 250 HDD	8
	Core i3, 2GB RAM, 250 GB HDD	12
	Core I5, 2GB RAM, 250 GB HDD	2
	Pentium IV, 1 GB RAM, 40 GB HDD	21
	Amd Athlon, 2 GB RAM, 40 GB HDD	1
Server	Xeon, 8 GB RAM, 500 GB HDD	1
Laptop	Core i3, 2GB RAM, 500 GB HDD	3
	Core i3, 4GB RAM, 500 GB HDD	1
Printer	Canon	18
	Epson	23
	HP	1
Scanner	Canon	1
UPS	PROLINK 1200 VA	29
Mikrotik	4 port	1
Ncomputing	L230	4
Antena	Prodelin Inc	2
Anti Petir		4
Wireless	TP Link	4
Switch	8 Port	9
	16 Port	2

The network infrastructure at the company now has a server. To use the Internet connection provider Iforte with a speed of 512 Kbps. Have been installed in every room of the LAN network and Access Point. Obstacles that there is a slow internet connection during working hours and lack of backup or mirroring server and server development. HR IT assets in the company as follows:

1) Programmer 2
2) Technician 2
3) Support Applications 1

4.4 IS Strategy

IS Strategy that will be proposed are as follows.

Tabel 2 IS Strategy

Strategic	High Potential
** Geographic Information System	? Silin information system
** Production Information System	
Key Operational	Support
() Logistics Information System	**Knowledge Management
() Acoounting & Finance Information System	
() Human Resource Information System	
() Information Systems Costing & Budgeting	
** Equipment Management Information System	
** Road Management Information System	

Key

( ) Existing system needs improvement
**** Planned system
? Potential system

Tabel 3 Gap Analysis

IS	Acc & Fin	Cost & Budg	HRIS	Log	Action
Acc & Fin	Opt				
Cost & Budg		Opt			
HRIS			Opt		
Log				Opt	
GIS					Dev
Silin					Dev
Prod					Dev
Equip					Dev
Road					Dev
KM					Dev

From the results of the gap analysis above, there are two actions that need to be made to the current application or in the future. The explanation of these two actions are:

1. Optimize (Opt)
   This action means that existing information systems is not optimal, so its need to be developed so that fulfilled the functions necessary to the future needs so that it can provide benefits to the institution.
2. Developed (Dev)
   This action explains that the information system does not exist yet and needed to support the process of the institution, so that this information system needs to be built to support the needs of the future.

Proposed new information systems in order to provide system development is done by a team of IT can be aligned with its business strategy. By developing a new information system that can help improve company performance by as easy as possible for the management to monitor the activities that occur within the company ranging from land clearing activities to the production process.

Tabel 4 Proposed application recommendations in future

Acoounting & Finance Information System
• Accounts Receivable Report
• Receivable age report
• Cost and receivable reports
• Debt recap report
• Debt age report
• Cost and debt report
• PO PO Report
• HD Non PO Report
• Automation of bank cash making
• Mobile web application for approval approval and monitoring process
Information Systems Costing & Budgeting
• Mobile web application for approval approval and monitoring process
• Budget control of the department
• Control of perCOA budgets
Human Resource Information System
• Presence with Finger Print
• Online leave submission
• Mobile web application for approval approval and monitoring process
Logistics Information System
• Mobile web application for approval approval and monitoring process
Geographic Information System
• Work area map
• Map of tree spread
• Crop maps
Silin information system
• Seed stock and planting media
• Plant monitoring
Production Information System
• Production report
• Recap of production
• Recaps ready to fit
• Shipment counts
• Sales recalls
• Report on production activities
Equipment Management Information System
• Record equipment assets
• Monitoring of equipment maintenance matters
• Availability of equipment
• Equipment reports

• **Toolkit cost report**
• **The report of the technician in charge**
Road Management Information System
• **Roadmaking report**
• **Road maintenance report**
• **Machine reports**
• **Cost report used**
• **Record of activities**
Knowledge Management
• **Search knowledge**
• **Forum**

To facilitate in understanding the concept of the proposed system then presented dashboard view of the system can be seen in the picture below

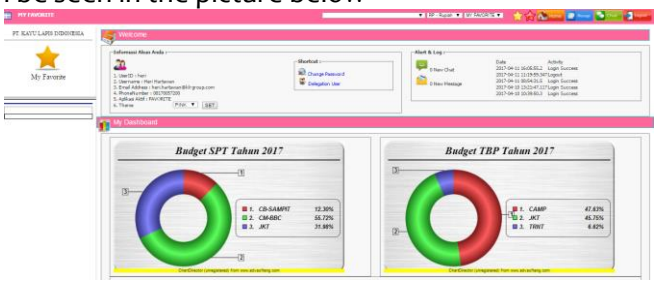

Figure 2 Interface dashboard information system

Based on the example above view can be explained features - features featured in the dashboard.

Tabel 5 Dashboard feature

Features	Description
Choice Company	Inside this feature is displayed the name of the existing company
Choice of information systems	In this feature is displayed any system information available within the company. Users just choose the system you want to use
Budget Graph	In this feature contains information related to each company's budget

4.5 IT Strategy

The company currently has the server to support information systems that already exist today. At this time speed internet access in the company still feels especially when working hours it is because it is only 512 Kbps of bandwidth and server mirroring for data backup process does not exist and development servers as well not exist. It is necessary to increase internet bandwidth to speed up Internet connections at 5 Mbps, and adding servers to support data backup process and the development process in order to use the IS/IT can run better.

4.6 Management Strategy IS / IT

In order for the strategic planning of IS / IT to work well it needs a management strategy / IT solutions according to the SI / IT proposed. Application of SI / IT is no need to be supported human resources who are experts in the IT field. With the implementation of new technology and competent human resources will improve the effectiveness and efficiency of business processes in the company. Following the proposal of human resources required to support the solution of IS / IT to be applied.

Tabel 4.6 Management Strategy IS / IT

No.	SDM	Total (People)
	System Analyst	1
	Programmer	2
	Quality Assurance	1
	Support Application	1

5 CONCLUSION

From the result of analysis and discussion about strategic planning of SI / IT to company by using Ward & Peppard framework, hence can be concluded as follows:

1. The proposed information system is expected to support the work of each division to become faster and easier such as:
   a. SILIN information system to assist in plant monitoring
   b. Production information system to assist production activities to make it easier to process reports
   c. Geographic information system to assist in displaying forest maps
   d. Management information system equipment to assist in monitoring equipment.
2. Information system strategy generated is a proposed portfolio information system and information system roadmap.
3. Information technology strategy generated is in the form of proposed hardware and infrastructure network proposal. From the proposed hardware known PC in the company today is outdated or old because it needs to need to be replaced with new and needed additional servers for development and data backup process as well as needed increase in internet bandwidth to connect him more smoothly
4. Management information system strategy generated is in the form of human resources proposal to support the proposed information system strategy. HR required system Analyst, programmer, quality assurance, and support application.

As for some useful suggestions in the Strategic Planning IS / IT for the future for the company are as follows:

1. For further discussion of Strategic Planning IS / IT at PT. Kayu Lapis Indonesia is able to perform estimating the time and cost of implementation of the Strategic IS / IT.
2. There should be a commitment from the company in implementing the Strategic Planning IS / IT in the form of addition and quality improvement of IT human resources migration from manual operations that still be computerized, and the commitment in terms of funding the implementation of Strategic Planning IS / IT.
3. Need Evaluation of the Strategic Planning IS / IT that will be applied in order to meet the objectives to be achieved.

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