



## Implementation of Ward and Peppard Methodology on IS/IT Strategic Planning (Case Study: Salatiga City Government)

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### Abstract

Rapid advances in technology have made many organizations compelled to plan and execute business strategies to improve organizational performance, so an organization must have an information system strategic plan to support the achievement of business strategies. The Salatiga City Government already has and implements an information system to support business processes but has not yet been integrated into all regional apparatus organizations (OPD). Collecting data in this study using interviews and observations as well as analysis to determine the business environment and the IS/IT environment of the Salatiga City Government. The method used in this study is Ward and Peppard with Value Chain analysis, SWOT, Mc Farlan's Strategic Grid. This research produces a portfolio of applications to provide an overview in the application of IS/IT to align business strategy and vision and mission.

Keywords: Ward and Peppard, Information Systems, Information Technology, Strategic Planning, Government.

### 1. INTRODUCTION

Rapid advances in the field of technology have made many organizations encouraged to plan and execute business strategies to increase competitive advantage, so an organization must have an information system strategy planning to support the achievement of business strategies. With the creation of an information system strategy plan, the organization's business strategy will be directed. The Salatiga City Government is one of the institutions that has implemented information systems and information technology in supporting business processes, but the systems used today have not been integrated with



each other so that they are still not optimal in helping operational activities. In carrying out the IS / IT strategic planning, it will use the Ward and Peppard methodology so that the results of this study are an IS / IT strategic planning model that supports the Salatiga City Government in implementing business plans and realizing the vision and mission of the Salatiga City Government and these results are also expected to answer the IS / IT needs needed by the Salatiga City Regional Government now and in the future. In carrying out its business processes, the Salatiga City Government has not implemented a well-integrated IS / IT in every Regional Apparatus Organization (OPD). By implementing strategic planning of information systems that are proportionally tailored to the needs, it can facilitate work by making the course of business processes more optimal and efficient [1].

Strategic planning of the information system uses the Ward and Peppard method which is adapted to the problems that occur in the Salatiga City Government. In strategic planning using the Ward and Peppard method, the analysis techniques used are, namely, the preparation of Value Chain to analyze the activities of the main business processes and supporting business processes of the organization, the next process is with SWOT analysis techniques to identify strengths, weaknesses, opportunities and threats) of organizations [2]. Followed by conducting an analysis using the Five Forces Porter analysis technique on the condition of the external business scope that is a risk to the organization, then continued with the creation of an application portfolio as a reference for IS / IT implementation for the Salatiga City Government using the McFarlan Strategic Grid [3].

In previous studies, many have discussed strategic planning of information systems. The first research was entitled "Planning for System Strategy and Information Technology at PT Microsis". The purpose of this study is to analyze the business processes of the organization and plan for the appropriate system and information technology strategy to support the goals and mission of the organization [4]. The second study was entitled "Steps for Strategic Planning of Information Systems using the Ward and Peppard Method". The objectives of this study align the IS / IT strategy with the company's business strategy, where in the future the business strategy will provide direction towards the achievement of company goals, and the IS / IT strategy will provide support for the achievement of company goals through the preparation of IT infrastructure in accordance with the company's business strategy [5].

The third research was entitled "Information System Strategic Planning Using the Five Forces approach and Value Chain Activity in Shrimp Farming in PT. Asindo Setia Tama". The purpose of this study is to make strategic planning of company information systems to maximize business processes, especially in increasing competitive advantage in business competition [6]. Ward and Peppard methodology model using SWOT Analysis, Value Chain Analysis, Critical Success Factor Analysis dan Strategic Grid McFarlan Analysis [7].

## 2. METHODS

The research methodology used in this study is Ward and Peppard and uses a qualitative approach to data collection. Where is data collection through interviews, analysis of the business environment, interpretation of data and conclusions. This study used several interrelated stages in obtaining data in the Salatiga City Government. The first stage is conducting interviews and observations with the SI / IT department in the Salatiga City Government. Data collection on the vision and mission, the implementation of the use of IS / IT and parts in the Salatiga City Local Government. The second stage is to analyze the internal business processes of the Salatiga City Government such as main and supporting activities, strengths, weaknesses, threats and opportunities. This research uses value chain analysis methods, SWOT analysis, MC Farlan Strategic Grid. This data collection is to take the first step in designing the Ward and Peppard method and to find out the problems that exist in the Salatiga City Government, in accordance with the Ward and Peppard method so that it can provide application proposals so that business processes in the Salatiga City Government goes even better. And conducting business and IS / IT analysis to find out how the use of IS / IT in salatiga city government. The third stage is to develop a business strategy, SI / IT strategy based on the analysis in the previous stage. The fourth stage is to compile a proposal for application priorities to be implemented. The fifth stage is mapping out the proposed application to be implemented in the next six years.

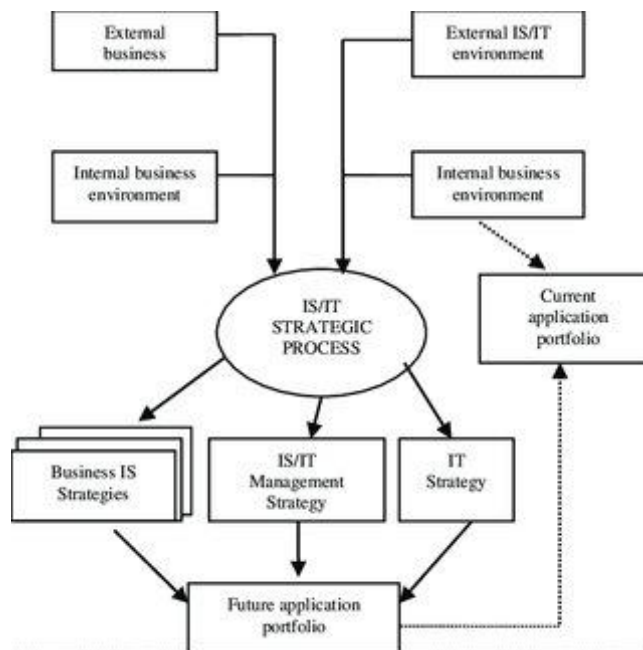


Figure 1. Flow of Research Activities

The Ward and Peppard method framework picture below illustrate the relationship between business strategy, IS/IT strategy in Salatiga City Government in an approach used to formulate an IS/IT strategy that is integrated with business strategy in Salatiga City Government itself.

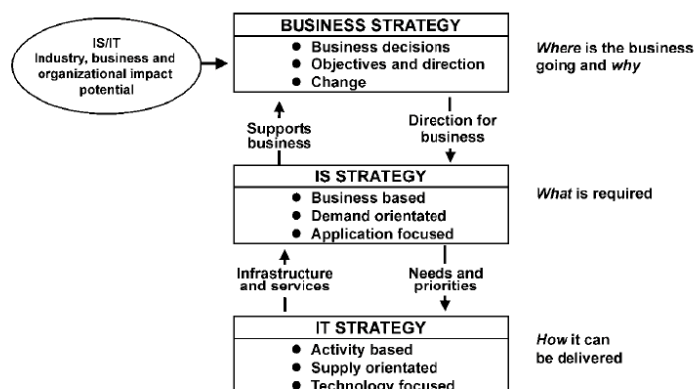


Figure 2. Relationship between Business Strategy, IS Strategy and IT Strategy

This study used Value Chain analysis method, Five Forces Porter analysis, SWOT analysis, McFarlan Strategic Grid [7]. This data collection is to take the first step in designing the Ward and Peppard method and to find out the problems that exist in the Salatiga City Government, in accordance with the Ward and Peppard method so that it can provide an application development solution so that business processes in the organization run even better. As well as conducting business and SI / IT analysis to find out the function of implementing IS / IT in Salatiga City Government [8]. The third stage is to develop a business strategy, IS / IT strategy based on the analysis in the previous stage. The fourth stage is to develop a priority solution for the application to be implemented. The fifth stage is mapping out the application solutions to be implemented in the next six years [9].

### 3. RESULTS AND DISCUSSION

Based on the results of interviews and observations made, the Salatiga City Government already has a strategic planning of the information system but is not yet in line with the vision and mission, it is necessary to formulate an information system strategic planning to increase competitive advantage and work efficiency. Strategic planning starts from analyzing the internal/external business environment and then analyzing the internal/external IS/IT environment at the Salatiga City Government.

#### 3.1 Analysis of the internal/external business environment

##### *Analisis Value Chain Activity*

This analysis is used to determine the main activities and supporting activities of the internal business environment of the Salatiga City Government, by looking at business processes, it can find out the needs of applications to support the main business activities, so that business processes are more effective and efficient. The following are the results of the value chain analysis of the Salatiga City Government:

The first stage of the analysis carried out is an analysis of the internal business environment of the organization which is carried out to clearly find out the business processes that occur in the Salatiga City Government so that a clear picture of the strategic plan of the information system is obtained to meet the

needs of the organization. The second analysis used, namely Porter's Value Chain Analysis, is carried out to describe the main business process activities and supporting business processes of the organization, while also aiming to identify and group the activities that occur in the organization into two major parts, namely the main activities and supporting activities as shown in Figure 3 below.

Main Activities	Planning	Implementation	Reporting	Publication and Socialization	Community Service
Supporting Activities	Infrastructure, Facilities, and Infrastructure				
	Procurement of Goods and Services				
	Human Resource Management				
	Information Technology				

Figure 3. Porter's Value Chain Analysis in Salatiga City Government

### SWOT Analysis

The next stage of analysis is a SWOT analysis where it finds out the business and IT conditions of the organization internally and externally.

- a) *Strengths*
  - Have good enough finances so that it can develop the organization's business in the government.
  - Have human resources and infrastructure to support the organization's business activities in government.
  - Have a supportive section for the implementation of the Information System as needed by the agency.
- b) *Weakness*
  - Information systems in the government have not been integrated with each other, resulting in the data owned not being properly organized.
- c) *Opportunities*
  - The development of information technology is increasingly rapid and modern and the availability of *enterprise* applications that can be directly used without the need to develop.
  - An ever-evolving business environment.

- Quality improvement.
  - Increased efficiency of the work of the organization.
  - An increase in the number of human resources.
- d) *Threats*
- Lose to compete with competitors who already have an integrated information system that makes business processes very efficient and fast.
  - The possibility of reduced human resources if business processes and technologies are not immediately developed and facilitated.

### 3.2 Analysis of internal/external SI/IT environments

In identifying the information system in the Salatiga City Government, an internal IS / IT environmental analysis is carried out which is used at this time which is carried out by the available information system resources and information technology. The resources in question are information systems in the form of applications, information technology in the form of hardware, application status and human resources, namely users of information system management information systems contained in the organization today. The list of information systems used by organizations today is as in the table below:

**Table 1.** List of Information Systems in Salatiga City Government

No	Information System Name	User	Status	Types of Applications
1	Website	Public relations	Integrated	Website
2	E-Budgeting	BPKAD	Not Yet Integrated	Website
3	E-Planning	BPKAD	Not Yet Integrated	Website
4	SIPD	All OPDs	Integrated	Website

### 3.3 Application Proposal

Based on the results of the analysis obtained from the previous several stages, namely the analysis of the IS / IT environment of the organization, both internal

and external environments, namely integrating information systems that are currently not integrated such as E-Budgeting and E-Planning.

**Table 2.** List of Proposed Information Systems in Salatiga City Government

No	Information System Name	User	Status	Types of Applications
1	E-Budgeting	BPKAD	Not Yet Integrated	Website
2	E-Planning	BPKAD	Not Yet Integrated	Website

Based on the information system solution strategy in the form of applications as in Table 2, it will be mapped according to their respective functions entered into the *Mc Farlan Strategic Grid Portfolio* matrix to see an overview of the contribution of each proposed application to the current and future Salatiga City Government. *Mc Farlan Strategic Grid* Mapping aims to analyze an information system or application in an organization based on current conditions and future planned conditions. The mapping is divided into categories defined as follows:

- 1) Quadrant 1 is the *Support* quadrant.
- 2) Quadrant 2 is the *Operational* quadrant.
- 3) Quadrant 3 is a *High Potential* quadrant.
- 4) Quadrant 4 is the *Strategic* quadrant.

The *Mc Farlan Strategic Grid* matrix used for mapping future applications in salatiga city local government can be seen in Figure 4 below.

<i>STRATEGIC</i>	<i>HIGH POTENTIAL</i>
▪ SIPD	▪ E-Budgeting ▪ E-Planning
▪ Website	▪ SIPD
<i>SUPPORT</i>	<i>KEY OPERATIONAL</i>

**Figure 4.** Strategic Grid Portfolio of Information Systems of the Minister of Trade in Salatiga city government.



Based on the mapping in Figure 4 above, it can make it easier for management to make decisions in determining the priority of implementing information systems in the organization according to current and future needs. The mapping explanation of the *Mc Farlan Strategic Grid* matrix above is as follows:

## 1) Support

This quadrant is a quadrant where every existing information system is an application that supports the organization's business activities. In this quadrant, the operations of organizations that still consider information technology as a *cost center*. Integration in this quadrant is generally only intended for information systems related to transactions in financial and accounting business processes.

## 2) Operational

This quadrant is a position in the demand, information systems are very convenient or operational to the organization. In this quadrant, the operational dependence of the organization on the use of information technology is very large, but the use of information technology in this quadrant is only to meet the needs of internal business processes.

## 3) High Potential

This quadrant is a quadrant in the information system is not only considered important for the continuity and internal business processes, but also business processes that occur in transactions or external business activities. In this quadrant, the need for information systems or information technology is considered a *competitive value* for the continuity of the organization's operational business, thus this information system has the potential to be successful in business continuity in the future.

## 4) Strategic

This quadrant is a quadrant where SI is considered to have a significant effect on business continuity in the future also this quadrant allows the organization's operations to consider maintaining the success of running a business continuity.

Based on the applications that have been proposed and mapped in Figure 4, an information system implementation plan is made by making a priority scale that takes into account the factors of resources, business functions, and complexity of the applications that will be implemented by the Salatiga City

Government in the future. The implementation priorities will be based on quadrants from *Mc Farlan Strategic Grid*:

Priority #1: Applications that are in the *operational key quadrant*.

Priority #2: Apps that are in the *support quadrant*.

Priority #3: Apps that are in the *strategic quadrant*.

Priority #4: Apps that are in the *high potential quadrant*.

## 4. CONCLUSION

Based on the results of interviews and observations and analysis, it can be concluded that the Salatiga City Government has implemented IS / IT in supporting existing business processes, but the system has not been fully integrated into all OPDs. So IS/IT strategic planning research with *the Ward and Peppard* method with several tools produces a portfolio of applications to provide an overview in the application of SI / IT to align business strategies and vision and mission. If the SI/IT portfolio is implemented by the Salatiga City Government, it is expected to benefit business processes so as to increase competitive advantage.

## REFERENCES

- [1] E. Ramanda Sembiring Pelawi and A. F. Wijaya, "Information System Strategic Planning In PT. Hosting Awan Indonesia Using Ward & Peppard Methodology," *J. Inf. Syst. Informatics*, vol. 2, no. 2, pp. 267–278, 2020, doi: 10.33557/journalisi.v2i2.70.
- [2] M. Ervina, C. Rudianto, and H. P. Chernovita, "Perencanaan Strategis Sistem Informasi Menggunakan Metode Ward and Peppard (Studi Kasus : Dinas Kependudukan Dan Pencatatan Sipil Kota Tomohon)," *Sebatik*, vol. 23, no. 2, pp. 604–610, 2019, doi: 10.46984/sebatik.v23i2.817.
- [3] S. H. Lawu and H. Ali, "Perencanaan Strategis Sistem Informasi Dan Teknologi Informasi Dengan Pendekatan Model: Enterprice Architecture, Ward And Peppard," *Indones. J. Comput. Sci.*, vol. 1, no. 1, 2022.
- [4] A. Wedhasmara, "Langkah-langkah perencanaan strategis sistem informasi dengan menggunakan metode Ward and Peppard," *J. Sist. Inf.*, vol. 1, no. 1, 2009.

- [5] F. Manoppo, "Perencanaan Strategis Sistem Informasi Menggunakan Metode Ward And Peppard (Studi Kasus: STMIK Parna Raya Manado)," in *Prosiding 2nd Seminar Nasional IPTEK Terapan (SENIT) 2017*, 2017, vol. 2, pp. 56–62.
- [6] F. D. Oes, A. R. Tanaamah, and A. F. Wijaya, "Perencanaan Strategis Sistem Informasi Menggunakan Pendekatan Five Forces dan Value Chain Activity pada Pertambakan Budidaya Udang di PT. Asindo Setia Tama.," 2015.
- [7] A. Lah, Y. Rahardja, and M. N. N. Sitokdana, "Perencanaan Strategis Sistem Informasi Menggunakan Metode Ward and Peppard Pada Pt. Serasi Autoraya," *Sebatik*, vol. 23, no. 1, pp. 185–191, 2019, doi: 10.46984/sebatik.v23i1.467.
- [8] W. Ferry, D. Agustinus, and F. Wijaya, "Perencanaan Strategis Si/Ti Menggunakan Metode Ward and Peppard (Studi Kasus: Sinode Gkj)," *Semin. Nas. Sist. Inf. Indones.*, no. November, pp. 39–44, 2018.
- [9] S. A. Destyarini and A. R. Tanaamah, "Pendekatan Metode Ward And Peppard Untuk Perencanaan Strategis Sistem Informasi DISPERINNAKER Kota Salatiga," *JATISI (Jurnal Tek. Inform. dan Sist. Informasi)*, vol. 8, no. 2, pp. 480–493, 2021, doi: 10.35957/jatisi.v8i2.899.
- [10] C. D. Rumiarti, B. R. Setiawan, and I. D. M. P. Wiana, "Kajian Perencanaan Strategis Sistem Informasi pada Bisnis Ritel Berbasis Metodologi Ward & Peppard : Studi Kasus PT. Gramedia Asri Media," *J. Teknol. Inf. dan Ilmu Komput.*, vol. 6, no. 3, p. 245, 2019, doi: 10.25126/jtiik.201963926.