

Information Systems Strategic Planning at one of the Vocational High Schools in Cimahi

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Abstract

A strategic plan is an organization's detailed and extensive strategy to effectively manage its resources and achieve its goals within a specified period. Effective implementation of an information system necessitates strategic planning inside an organization to capitalize on the advantages of the information system implementation fully. This also applies to a Vocational High School in Cimahi. The school encounters many obstacles, including managing school data and performance assessments and requiring a unified system across departments to facilitate the school's operational procedures. Strategic planning establishes specific objectives, such as integrating information systems in academic and non-academic operations, overseeing school data management, enhancing infrastructure management efficiency, and boosting competitiveness by developing a web-based school support system for information and promotional purposes. Aligning the information system's strategies with the school's business strategies will aid in accomplishing these objectives. Developing information system strategies necessitates alignment with the organization's existing business strategies. This research examines the strategic information system planning process, specifically employing the Ward-Peppard technique. This approach facilitates a more comprehensive comprehension of the firm before developing a strategic plan. It involves doing a SWOT analysis, Value Chain analysis, Porter's Five Forces analysis, and McFarlan's strategic grid analysis as recommendations for the proposed information system strategies.

Keywords : Information Systems, Strategic Planning Information Systems, Ward And Peppard, Swot, Value Chain, Mcfarlan's Strategic Grid

INTRODUCTION

An information system is a powerful tool in the realm of information technology. (Ardi & Andriani, 2023; Rusi & Febriyanto, 2021) It's a complex network of components designed to discover and manage information, thereby enhancing business activities. Our Vocational High School in Cimahi is dedicated to providing education in four specialized fields: Software Engineering, Accounting and Financial Institution, Office Automation and Governance, and Online Business and Marketing. To fulfill our vision and mission, we have crafted a strategic plan that serves as a roadmap for achieving our objectives and gaining a competitive advantage over other institutions. Handoyo, (2022) Strategic information systems are specifically created to convert an

organization's strategic objectives into actionable decisions that can be executed using information technology. Sanoto, (2021) assert that information technology can impact competition through three primary mechanisms: enhancing operational efficiency, generating novel market prospects, and altering industry competitive dynamics.

Strategic information systems (SIS) are key elements in modern organizational management. (Jordan & Andry, 2024; Rusi & Febriyanto, 2021) They use information technology (IT) to support business strategy and company operations. (Ding et al., 2021; Septiana et al., 2020) Effective SIS implementation can provide a competitive advantage, enhance operational efficiency, and support strategic decision-

making. (Irmayani & Munandar, 2020; Verares, 2021)

It is essential to synchronize the school's strategy with its IT/IS strategy in order to attain a competitive edge. (Irmayanti & Kaniawulan, 2022) The Vocational High School in Cimahi has incorporated Information Technology (IT) and Information Systems (IS) to facilitate school operations. However, this implementation has not been executed entirely in all domains or operational procedures. Thus, developing a strategic information system plan for this Vocational High School in Cimahi is imperative to synchronize the school's business strategy with its IT/IS strategy. Strategic information system planning is conducted using the Ward Peppard methodology. The Ward Peppard method employs Value Chain analysis, SWOT analysis, and McFarlan's strategic grid to assess the internal and external company environment. The analysis will generate a recommended collection of applications to assist the school in its business operations, thereby improving its competitive edge and accomplishing its objectives.

METHOD

This study employs a qualitative research methodology. Qualitative research is a method that employs narratives or words to elucidate and depict the significance of each phenomenon, symptom, and particular social context. In order to streamline the study process, the researcher developed a framework that may be used as a guide, guaranteeing that the actions conducted are more methodical and focused. The research framework is outlined as follows:

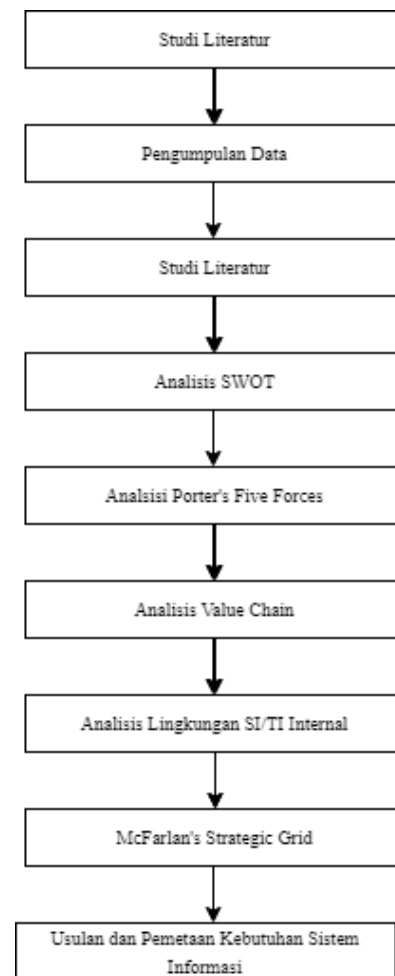


Figure 1. Research Framework

Data collection technique

The data collection methods employed in this study encompass interviews, observations, and secondary data. The research methodology employed in this study involves using primary data, which will be gathered through direct means such as interviews, observations, and focus group discussions (FGD).

Data Collection Methods

The data utilized is qualitative and will subsequently be given in a descriptive format. The data is acquired through the integration of interview and observation methods,

supplemented by facilitating focus group discussions (FGD) within the organization.

Interview

The interview technique is the systematic approach of collecting information by engaging in direct conversation between the researcher and the participants. Technological and communicative advancements have facilitated interviews through many mediums, such as face-to-face interactions, phone calls, Zoom, WhatsApp, and other platforms. Interviews can be categorized as structured or unstructured, and their purpose is to investigate different aspects of the study problem.

In this study, the semi-structured interview is conducted with a specific group of participants-the company's management. This choice is not arbitrary, but strategic, as the management's insights are crucial for a comprehensive understanding of the research problem.

Observation

Observation is a research method that involves physically visiting a company to directly observe its activities and collect specific information relevant to the inquiry.

Focus Group Discussion (FGD)

A Focus Group Discussion (FGD) will be organized to assemble individuals with similar backgrounds and experiences. The purpose of this discussion is to explore themes relevant to the school's aims. The research employs a semi-structured FGD type, which entails using essential questions to ascertain the five strengths of the institution. The study entails performing face-to-face interviews with different departments inside the educational institution. The data collected from these interviews is subsequently utilized to conduct internal and

external company studies. The analysis findings will be presented to the owners and management team of the school at the FGD (Focused Group Discussion). The Principal and management team will jointly analyze the data and comprehensively grasp different solutions the school can implement.

RESULTS AND DISCUSSION

SWOT analysis :

SWOT analysis is a strategic planning tool for observing and assessing a company's external and internal environment and organizational goals.

Strength :	Weakness :
a. As many as 92% of teachers have a bachelor's degree	a. The location of the school is less strategic
b. The school environment is comfortable and beautiful	b. The land where is located is not owned land
c. There is good cooperation and communication between school principals, employees, teachers, parents and students	c. As many as 15% of teachers cannot use ICT in teaching and learning activities
d. Applying ICT-based learning processes to almost all subjects	d. There are still many teachers who cannot communicate using a foreign language (English).
e. Funding of educational	e. Funding for parents of students in the development budget is very difficult because most of the economic

facilities is quite complete	conditions are below average.
f. Applying an active, creative, effective and fun learning model.	
Opportunities : a. As many as 8% of teachers have master's degrees b. School facilities continue to improve every year c. The availability of internet facilities that students can freely access so that students can more easily increase their knowledge and insight. d. Government support in providing assistance to schools.	Threat : a. The distance is so close between educational institutions at the same level as vocational schools and many other quality vocational schools b. There are students who are unable to follow lessons c. Graduates do not meet expectations, namely they are unable to master the competency skills they have taken.

Porter's Five Forces analysis

Porter's five force analysis is a method for identifying and evaluating external elements that impact ongoing corporate operations.

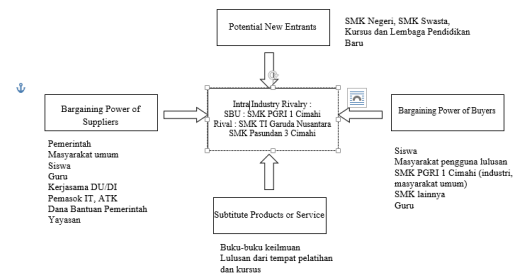


Figure 2. Porter's Five Forces analysis

Value Chain Analysis

Value Chain analysis aims to discover and choose activities that can generate value for the business and then optimize these activities to maximize the value created for the organization. Value Chain analysis classifies operations into primary and support activities, which can be used as strategic blueprints to develop information systems.

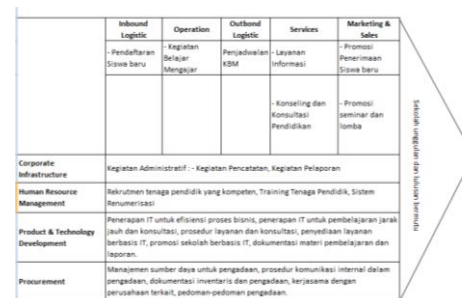


Figure 3. Value Chain Analysis

Internal IS/IT Environment Analysis

Hardware (Hardware)

The computer gear typically utilized for administrative operations comprises around five units, while 70 PCs are distributed across three computer laboratories for student learning activities. The personal computers (PCs) are equipped with i3 CPUs, 4-8 GB of RAM, and an average hard drive size of 500 GB. Three server computers are equipped with Intel i5 CPUs, 16 gigabytes of RAM, and 250 gigabytes of solid-

state drive (SSD) storage. These servers serve the objectives of hosting applications, websites, and databases.

Software

The applications at one of the Vocational High Schools in Cimahi are predominantly self-developed. Nevertheless, the functionality of the program still needs to be improved.

Operating system

Vocational High Schools in Cimahi primarily utilize Microsoft Windows 7 and Windows 10 as their primary operating systems.

Infrastructure

To enhance network accessibility, connecting all client computers to the switch using Gigabit speed is advisable. Additionally, server connections to the switch should also be Gigabit, ensuring that servers are not located in network segments that could cause congestion. Furthermore, uplink switch connections should be configured as full-duplex and high-speed Gigabit. A reliable and consistent network is required, with DHCP services to support all client computers. Additionally, a scalable LAN architecture that can accommodate the site's functional and capacity requirements should be implemented.

Information System Elements

a. IT Organization and Culture Analysis

Strength	Weakness
Competent human resources	Inappropriate decision making
Fun work environment	Lack of coordination between departments
Adequate Information System	
Top management commitment	

Flexible	
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b. IS Process Analysis

Strength	Weakness
Academic Regulation Documentation	Undocumented school activities
Main Duties and Functions of Educators	There is no integrated IS implementation yet

c. Business Application Analysis

Strength	Weakness
Running smoothly	Outdated architecture
Measurable costs	There must be adjustments to ongoing business processes
Web Based Application	
Desktop Based Application	There is no data integrity in every part of the system
Customizable	

d. Technical Architectural Analysis

Strength	Weakness
Reliable	Failure in operation
Up to date technology	antivirus or firewall that is too sensitive
Corresponding network components	
Antivirus, firewall and other system security	The server sometimes errors so that the system in the lab does not function.
Customizable	

IS/IT Opportunities Analysis

	Strategy
Supplier	Increasing the competency of teaching staff through training
Customer	Improving educational services

	Diversity of extracurricular activities for students' interests and talents
Competitor	Implement competitive entry fees
	Adding new majors that are trending
	Improve school facilities

According to the analysis conducted using the Ward and Peppard technique, the projected information system requirements for a vocational school in Cimahi are as follows:

Key Operational	Strategic
SI New Student Admissions Civil Service SI	Academic SI Learning Management System/elearning School Website
Support	High Potential
SI DU/DI SI Prakerin	SI Finance SI Facilities and Infrastructure SI Tracer Study

CONCLUSION

Strategic planning refers to an organization's extensive and far-reaching planning process. It involves determining the direction and approaches for effectively managing resources to accomplish organizational objectives within a specific timeframe. Strategic information system planning is crucial for firms to synchronize organizational business processes and information system technology. The planning stages proposed by the Ward & Peppard model facilitate the identification of information

requirements and formulating strategies to accomplish corporate objectives.

Using the Ward and Peppard approach analysis results, a portfolio of suggested applications can be generated: The system encompasses various aspects such as new student admissions, personnel management, academics, DU/DI programs, Prakerin, finance, facilities and infrastructure, tracer study, LMS/e-learning, and the school website.

REFERENCES

- Ardi, A., & Andriani. (2023). SISTEM INFORMASI AKADEMIK BERBASIS LARAVEL UNTUK REGISTRASI ULANG DAN PENGAJUAN CUTI MAHASISWA. *INFOTECH Journal*, 9(1), 159–166. <https://doi.org/10.31949/infotech.v9i1.5194>
- Ding, Y., Zhang, N., & Li, Y. (2021). College Physical Education Course Management System Based on Internet of Things. *Mobile Information Systems*, 2021, 1–10. <https://doi.org/10.1155/2021/5874390>
- Handoyo, C. A. (2022). Perencanaan Strategis Sistem Informasi Menggunakan Metode Tozer (Studi Kasus : CV. XYZ). *JATISI (Jurnal Teknik Informatika Dan Sistem Informasi)*, 9(3), 1723–1738. <https://doi.org/10.35957/jatisi.v9i3.2130>
- Irmayani, D., & Munandar, M. H. (2020). SISTEM INFORMASI PENGELOLAAN DATA SISWA PADA SMA NEGERI 02 BILAH HULU BERBASIS WEB. *JURNAL INFORMATIKA*, 8(2), 65–71. <https://doi.org/10.36987/informatika.v8i2.1427>

- Irmayanti, D., & Kaniawulan, I. (2022). PERENCANAAN STRATEGIS SISTEM INFORMASI DI SEKOLAH TINGGI TEKNOLOGI XYZ PURWAKARTA. *Produktif: Jurnal Ilmiah Pendidikan Teknologi Informasi*, 4(1), 295–301. <https://doi.org/10.35568/produktif.v4i1.746>
- Jordan, J., & Andry, J. F. (2024). Perencanaan Strategis Sistem Informasi Sekolah Menengah Atas Menggunakan Ward Peppard. *Infotek : Jurnal Informatika Dan Teknologi*, 7(1), 276–287. <https://doi.org/10.29408/jit.v7i1.24167>
- Rusi, I., & Febriyanto, F. (2021). Perencanaan Strategis Sistem Informasi untuk Optimalisasi Layanan Sekolah Menggunakan Ward and Peppard. *Jurnal Sisfokom (Sistem Informasi Dan Komputer)*, 10(2), 189–196. <https://doi.org/10.32736/sisfokom.v10i2.1170>
- Sanoto, H. (2021). Manajemen Perencanaan Strategis Sistem Informasi Menggunakan Metode Tozer (Studi Kasus: SMK Bina Nusantara Ungaran). *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, 11(1), 72–79. <https://doi.org/10.24246/j.js.2021.v11.i1.p72-79>
- Septiana, Y., Mulyani, A., Kurniadi, D., & Arifin, D. M. (2020). Information Systems Strategic Planning For Healthcare Organizations Using Information Systems Strategic Planning For Healthcare Organizations Using Ward And Peppard Model. *International Journal Of Scientific & Technology Research*, 9(2).
- Verares, I. E. E. (2021). Perencanaan Strategis SI/TI di PT. Segoro Mas Solo menggunakan Metode Ward and Preppard. *JATISI (Jurnal Teknik Informatika Dan Sistem Informasi)*, 8(8), 2317–2329.
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