
Personnel Information System Strategic Planning Using the Ward and Pepprad Method (Case Study: SMP N KARANGPUCUNG)

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Abstract—Information Systems (IS) now have a very necessary use for agencies in business activities. The role of SI in the business contribution of agencies that have implemented IS management in their business activities, namely the education office. Strengthened by Law Number 20 of 2003 concerning the National Education System where facilities and infrastructure are needed to support education to become more systematic and to support learning and administration in education. The education sector that uses information systems in carrying out its business is SMP Negeri 1 Karangpucung. Based on interviews conducted with Mr. Asep Ibnu Aryapapilaya as the information system data manager for SMP Negeri 1 Karangpucung, argues that the information system that is owned is more focused on the field of staffing where there are problems, namely IS has not been integrated with one another, causing data redundancies and hampered service processes due to SI not working effectively. If there is a problem, SMP Negeri 1 Karangpucung, especially in the field of staffing, requires planning an information system strategy using the Ward and Peppard method to produce a future information system strategy plan document by recommending future information systems that need to be retained, optimized, developed.

Keywords—Information Systems, Ward and Peppard, Cworn out Data Redundancies

I. INTRODUCTION

Information Systems (SI) now have indispensable uses for agencies in business activities [1]. The role of IS in the business

contribution of agencies that have implemented IS management in their business activities, namely education service agencies [2]. Strengthened by Law Number 20 of 2003 concerning the National Education System where facilities and infrastructure are needed to support education to become more systematic and to support learning and administration in education. The education sector that uses information systems in carrying out its business is SMP Negeri 1 Karangpucung[4][5].

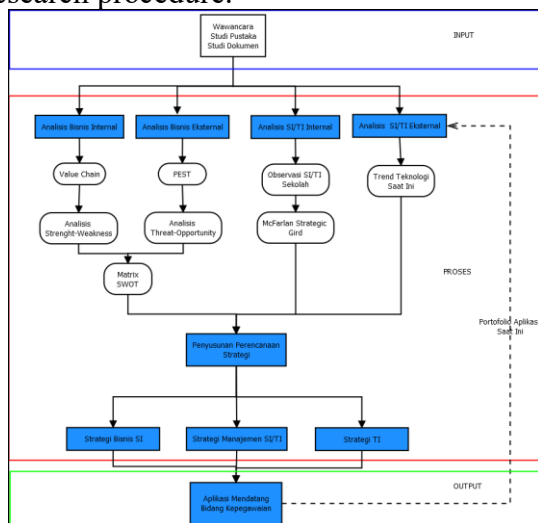
Based on interviews conducted with Mr. Asep Ibnu Aryapapilaya as the information system data manager for SMP Negeri 1 Karangpucung, argues that the information system that is owned is more focused on the field of staffing where there are problems, namely IS has not been integrated with one another, causing data redundancies and hampered service processes because SI does not work effectively.

The problems that occur in the field of staffing require a solution in the form of information system strategic planning in order to increase competitiveness in service competition in the field of staffing. The research will formulate an information system strategic plan using the Ward and Peppard method[6]. The choice of the Ward and Peppard method is compared to the TOGAF method, the Zachman framework enterprise Architecture planning, because Ward and Peppard's strategic planning is a method that starting from assessing and understanding the analysis of internal and external business conditions and understanding of internal and external IS/IT analysis which are already assessed walk less effective[6][7]. Use of the Ward and Peppard method explain tools, and skeletonsa bag worki management to align

information systems strategi with the business strategy given by the organization[8]. As fortoolsin the Ward and Peppard method namely Politics, Economics, Social, Technology (PETS), Strength, Weakness, Opportunity, Threat (SWOT), Value Chain, McFarlan Strategic Grid, Analysis of Technology Trends and Critical Success Factors[8][9].

II. METHOD

In this study, there is an overview of the research procedure:



Figures 1 Research Procedure

Figure 1 above is a picture of the research flow using the Ward and Peppard method, in which the process is divided into three stages, namely input, process and output. The following is an explanation of the image above:

2.1 Inputs

Input is the process of collecting data needed in research, namely interviews, literature studies, documentation studies. Input sourced from interviews is information derived from Mr. Asep Ibnu Aryapapilaya, for documentation studies sourced from School Work Plans (RKS), and for literature studies sourced from journals related to with planning strategic information Systems.

2.2 Process

The process of preparing the information system strategy in this study was carried out through:

2.2.1 Business Analysis Internal Personnel Sector

Analysisbusiness internal regarding the condition of the internal environment inSMP Negeri 1 Karangpucungidentifiablewith toolsinternal business analysis in the form of Analysis Value Chainsand Strength Weakness Analysis[10].

2.2.2 External Business Analysis in Personnel Sector

Business analysis external inSMP Negeri 1 Karangpucungparticularly in the field of personnel conduct an analysis of environmental conditions by looking at the conditions politics, economics, social culture, technology[11]. The following tools are used in external business analysis, namely PEST and Opportunity and Threat analysis.

2.2.3 Internal Analysis of IT Personnel IS/IT

Internal analysis in environment SMP Negeri 1 Karangpucung specifically in the field of staffing with methodconduct school IS/IT observations & aMcFarlan Strategic Grid analysis[12].

2.2.4 External Analysis of IT Personnel

IT external analysisSMP Negeri 1 Karangpucungparticularly in the field of staffing by way ofidentify things in the form of technology which is growing fast time this, the technology used by other agencies, and the technology used for support organizational goals[13].

2.2.5 Business Strategy

The business strategy for SMP Negeri 1 Karangpucung specifically in the field of staffing compiles components consisting of: agency business processes, the use of information technology in certain business areas, and information systems needed at SMP Negeri 1 Karangpucung specifically in the field of staffing [14].

2.2.6 Information System Management Strategy and Information Technology

IS/IT management strategy for SMP Negeri 1 Karangpucung specifically in the field of staffing, namely compiling general elements of the strategy that will be applied to SMP Negeri 1 Karangpucung specifically for the field of staffing in the form of: organizational forms, policies in allocating costs and implementing IT strategies[15]

2.2.7 Information Technology

The IT strategy for SMP Negeri 1 Karangpucung specifically in the field of staffing is to conduct an IT analysis in which there are resources and technology used to support SMP Negeri 1 Karangpucung agencies specifically in the field of staffing including: network topology, information system flow, software, telecommunication tools and their maintenance [15].

2.3 Output

The output or output stages will result in an information system strategic plan containing recommendations for future applications as an effort to develop information systems SMP Negeri 1 Karangpucung particularly in the employment sector

III. RESULTS AND DISCUSSION

Analyze current conditions using the Ward and Peppard method

3.1 Inputs Interview

Interviews were conducted with selected informants in terms of understanding the use of information systems at SMP Negeri 1 Karangpucung. Interviews were conducted to identify problems in the field of staffing at SMP Negeri 1 Karangpucung. The problems faced in the field of staffing are that the optimization of information systems and information technology has not been optimal, and the existing systems have not been fully integrated.

Documentary study

The documentation study in this study was to conduct an assessment of the School Work Plan (RKS) document for SMP Negeri 1 Karangpucung. Literature study in this study was to carry out a literature review related to previous research by reviewing journals.

3.2 Process

Internal Business Analysis and External Analyzing the organization's business from internal and external sides with tools value chain, pest and SWOT analysis :

Value chain analysis in the field of staffing



Figures 2 Value chain analysis in the field of staffing

PEST analysis

PEST analysis was performed for organizational considerations from a macro perspective. Here's a PEST analysis in table form below this:

Table 1 PEST

Category	Condition	Organizational Impact
Political	Government regulations Number 52 of 2000 regarding Telecommunications Operations.	The existing technology at SMP Negeri 1 Karangpucung has a good impact in the form of easy publication of school-related information to the public
	Law Number 20 of 2003 Chapter I on the National Education System	Business processes in SMP Negeri 1 Karangpucung must refer to Law No. 20 of 2003 Chapter 1 where every decision making must prioritize the quality of education
	Regulation of the Minister of Education National Number 24 2007 concerning Infrastructure Standards.	SMP Negeri 1 Karangpucung has managed the assets properly in accordance with government regulations regarding standard facilities and infrastructure and organizations that always improve the quality of facilities and infrastructure in schools.
	Regulation of the Minister of Communications And Republic of Informatics Indonesia Number 2 Year 2013 about Provision of Wireless Internet Access Services.	SMP Negeri 1 Karangpucung has an internet network available in its business processes which makes it easier for schools to get information from the government "education office" in providing information related to education and makes it easier for schools to provide knowledge through the help of an internet network
	Regulation of the Minister of Education, Culture, Research and Technology of the Republic of Indonesia Number 28 of 2021 concerning the Organization and Work Procedure of the	The organization becomes more orderly with the support of administrative officers who have the task of carrying out planning, finance, staffing, management, goods state property,

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	Ministry of Education, Culture, Research and Technology	letters, record management.
Economy	There is assistance from the central government and regional governments through BOS funds for educational purposes.	Schools or organizations receive assistance channeled for school infrastructure and operations as well as student needs.
Social	Community environment that supports the school	SMP Negeri 1 Karangpucung is well received in the community.
	High public awareness to pursue junior high school education	Many people want their children to attend SMP Negeri 1 Karangpucung because the quality of this junior high school is one of the top junior high schools in Cilacap Regency.
Technology	Technology is developing rapidly in the world of education	It is easy for the community to obtain information regarding the quality of educators at SMP Negeri 1 Karangpucung and the achievements of SMP Negeri 1 Karangpucung.

SWOT Matrix

	Strength	Weaknesses
Internal	<ol style="list-style-type: none"> Accredited school status A The school has a principal who has met the standards The school has teachers with S-I and D-IV qualifications of 70% and already have educational certificates. There are employees in the civil service sector who are graduates with S.kom degrees or Bachelor Degree in Information Systems. There are employees who have specific tasks in the operation of information systems data management There is training for operators The school already has librarians who meet competency standards School has a science laboratory standards School have had administrative officer and head of administration who fulfill competency standards School have officers Special services include: school security, gardeners, cleaners, and janitors. 	<ol style="list-style-type: none"> Employees technology mastery level is low for employees Employees in the personnel sector are still not optimal in communicating in English or other foreign languages. Lack of special employees in charge of managing information systems Does not have a system related to student data storage independently and still uses a central system. Do not have specific certification related to the operation of information systems WiFi signal is sometimes hampered Employees or students sometimes experience delays in collecting files The school does not yet have a laboratory head, laboratory technician with a minimum academic qualification of D-II, D-IV or S1 Amount maple teachers according to the number of subjects The school does not yet have a head librarian who meets the standards
external	<ol style="list-style-type: none"> The application has been provided by the district office or district information office There are government regulations that support the administrative system There are rapid technological developments that support easy access to information regarding school profiles and ease of access in employee data collection 	<ol style="list-style-type: none"> Provide training for employees related to technology management Adding human resources according to the qualifications and competencies needed by SMP Negeri 1 Karangpucung Improve the quality of the wifi signal
Threats	<ol style="list-style-type: none"> Dynamic government regulations and policies Too many applications and overlapping functions The website was down at the time of inputting files when the implementation took place at the same time as the Cilacap district or nationally There is a notification from BKD regarding the sudden input of employee management files 	<ol style="list-style-type: none"> Optimizing IS/IT services among employees by providing modules on how to input files so that they are not late in inputting files Develop system priority scales that must be implemented and understood by employees

Figures 3 SWOT Matrix

Internal and External IS/IT Analysis

Analyze organizational IS/IT from internal and external sides with observation tools, McFarlan Strategy Grid and current Technology Trends:

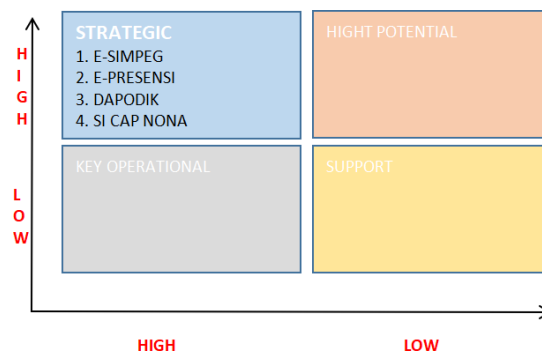
Observation identify information related to IS/IT in schools. The following is a picture of the observation :

Group	Type	
Hardware	Computer	
	Input Devices	Keyboards
		Mouse
	Output device	Projector
		Printers
		Monitors speakers
	Laptop	
	Storage Media	hard drive
		flashdisk
	Software (software)	Operating system
Application System		E-Simpeg
		E-Presence
		Dapodik
		The Miss Cap
Communication Device	Network	Lan Internet
	Network Device	Wifi Access Point
Switch Hubs		
Routers		
Fiber Optic 2 Cores		
Optical Distribution Point(ODP)		

Figures 4 IS/IT Observation

Current McFarlan Strategic Grid

The McFarlan Strategy Grid currently functions to map existing applications in schools today by grouping them into 4 McFarlan quadrants. Can be seen in the image below:



Current Technology Trends

Current technology trends has a useful purpose to inform analysis related to the technology that is currently developing rapidly, the technology used by other agencies, and the technology used to support organizational goals. Below are the results of an external IS/IT analysis:

- Easy to develop system
- Easy publication of information
- Flexible in user interface
- Easy in maintenance

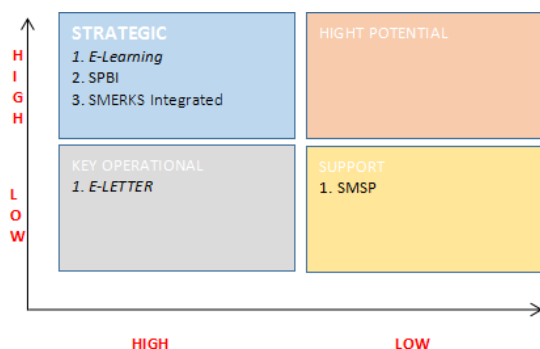
Critical Success Factor CSF

CSF used to analyze business activities in an organization that have a strong impact on organizational success in achieving organizational goals, especially for staff and student

Business strategy	CSF analysis	IS/IT requirements
Improving the quality of the quality of human resources and the quality of educators for students and fellow employees	Focusing on educators who have high intellectual quality, skills to communicate and there is regular training to hone the abilities of educators.	An information system that can be used to manage the quality of educators and includes training and intellectual development features on an ongoing basis.
Improve English language skills and mastery of information technology in a professional manner	Ensuring HR employees and students have qualified English language skills.	An information system that is useful for improving English skills.
Utilization of educational and training facilities for employees and students can run optimally	Ensuring education and training facilities are properly met and maintained.	An information system that can assist in monitoring the preparation of adequate infrastructure.
Development of an integrated monitoring evaluation information system for school work plans	Ensuring schools can monitor the evaluation of integrated school work programs	Useful information system for monitoring the evaluation of integrated school work plans.
Improving services and data collection related to the recording and management of letters in the SMP Negeri 1 Karangpucung environment	Ensuring that the recording and management of letters in the SMP Negeri 1 Karangpucung environment can run well	An information system that can be used in the process of recording and managing letters in the SMP Negeri 1 Karangpucung environment

Figures 6 csf

Based on the csf, a proposed portfolio of future applications in the field of personnel was obtained by mapping the mcfarlan Strategic Grid.

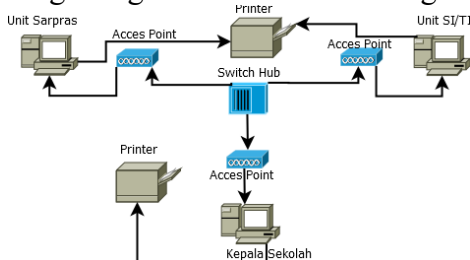


Figures 7 mcfarlan Strategic Future

3.3 Outputs

Information Technology Infrastructure Analysis and Strategy

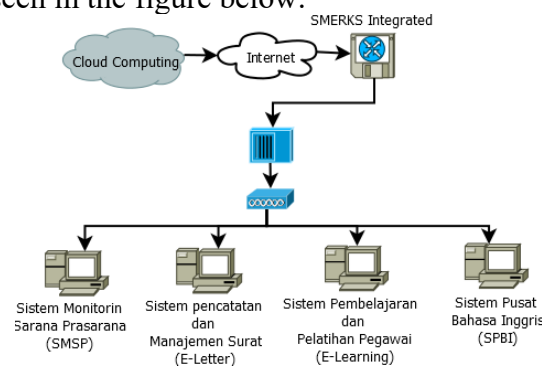
Conduct analysis of IT infrastructure in school related sections organization that has main tasks and functions in managing resources information technology resources from within managing technology resources to increase staffing in SMP Negeri 1 Karangpucung can be seen in the image below:



Figures 8 IT Infrastructure Strategy

Information Technology Infrastructure Strategy Formulation

The design of the IT infrastructure strategy proposed to SMP Negeri 1 Karangpucung is in the form of a computer network architecture that can be used as a reference in infrastructure development for the future. IT network architecture recommendations can be seen in the figure below:



Figures 9 Cloud Computing Computer Network

IS/IT Management Analysis and Strategy

Criteria for the level of success of IS/IT management in implementing a staffing information system for SMP Negeri 1 Karangpucung can be proposed as follows:

1. Optimizing all existing information systems at SMP Negeri 1 Karangpucung.
2. Create a special unit in the management and handling of IT
3. Evaluate school work plans and the performance of human resources for future improvement
4. Improving the quality of employees according to the qualifications contained in the school work plan and adding employees who are not yet in positions according to the needs in the school work plan
5. Providing electronic-based services to employees and students

Gaps Analysis

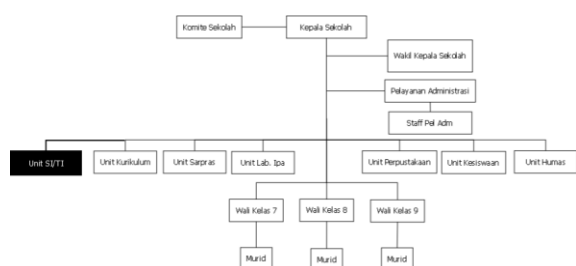
Gap analysis is a useful analysis to determine what applications require upgrading, deleting, and development actions as well as to compare which applications exist at this time and the recommended application in the future so that the process of IS/IT activities remains constant aligned with business.

App Name	Optimized	Retained	Developed	
Strategic	E-Simpeg		Yes	
	Dapodik		Yes	
	E-Presensi		Yes	
	Si Cap Nona	Yes		
	SMERKS Integrated			Yes
	SPBI			Yes
Key Operational Support	E-Learning		Yes	
	E-Letter		Yes	
SMSP			Yes	

Figures10GAP

Recommendations Proposed Organizational Structure

Presentation of structure recommendations the organization at SMP Negeri 1 Karangpucung is described inPicture below :



Figures11Future Organizational Structure

IV. CONCLUSION

4.1 Conclusion

The discussion above can be summarized as follows:

1. The IS business strategy, IS/IT management strategy, IT strategy and future IS/IT recommendations have been prepared in the strategic plan document information Systems SMP Negeri 1 Karangpucung which is aligned with the vision and mission by referring to the junior high school work plan document Country 1 Karangpucung years 2021-2025
2. This research focuses on the development of the field of staffing, on which the research data is based junior high school work plan documents Country 1 Karangpucung 2021-2025 and interviews with sources.
3. There are 5 systems that need to be developed, namely SMERKS

Integrated, SPBI, E-Learning, E-Letter, SMSP.

4. There are 3 systems that need to be retained, namely E-Simpeg, Dapodik, and E-Presensi.
5. There is 1 system that needs to be optimized, namely Si Cap Nona

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