Implementation of Ward and Peppard in Information Systems Strategic Planning
(Case Study: Hotel Kartika Bandungan)

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Abstract

Hotel Kartika Bandungan is one of the family hotels located in Bandungan District, Semarang Regency, Central Java Province. Hotel Kartika Bandungan has a lag in the field of technology because other hotels around it already have their own system. Due to the absence of an integrated system, it is necessary to plan an IT / SI strategic plan that suits the needs and conditions of the Kartika Bandungan Hotel. This study aims to increase the effectiveness and efficiency in carrying out business processes, as well as make Hotel Kartika Bandungan still able to lead during hospitality business competition. In this study, the methodology used was Ward and Peppard which was supported by SWOT, PEST, Value Chain and McFarlan Strategic Grid analysis methods. The data collection method used is a descriptive qualitative method inandi by conducting an interview with the company owner and direct observation to the Kartika Bandungan Hotel. Based on the results of the analysis at the Kartika Hotel Bandungan, it is proposed that the Customer Data Information System, Financial Information System, Employee Payroll Information System, Hotel Needs Information System, and Attendance Information System are proposed. The results of IT/SI strategic planning can be implemented in the next four years.

Keywords: Strategic Planning, Information Systems, Ward and Peppard

1. INTRODUCTION

In today's era, technology has a big role for an organization or agency in carrying out its business processes. SI / IT, which has progressed in the current era, plays a role in the development of business processes, including increasing the effectiveness and efficiency of performance processes in an organization or agency. Therefore, SI / IT strategic planning is needed to be implemented in a company or agency that can run in accordance with the vision, mission, and business processes that exist in the company or related agencies so that goals can be achieved [1].

Hotel Kartika Bandungan is one of the family hotels located in Bandungan District, Semarang Regency. This hotel has been established since 2006 and is in a strategic location adjacent to tourist attractions located in Bandungan such as Umbul Sidomukti, Gedong Songo Temple, and many more tourist attractions and culinary around it. Hotel Kartika Bandungan does not yet have an integrated system to operate the hotel. The operation of this hotel is still manual starting from room booking, room payment, to recording. As a result, Hotel Kartika Bandungan has a lag in the field of technology because many hotels around it already have an integrated system to operate the hotel. The absence of a system at the Kartika Bandungan Hotel is something that must be improved.

Therefore, the choice of Hotel Kartika Bandungan as the location of the case study in this study was due to the large number of new hotels that emerged and moved in the Bandungan area. It is hoped that the optimization of the use of SI / IT can add to the business strength of Hotel Kartika Bandungan. This research will discuss how Hotel Kartika Bandungan operates, including the business processes carried out, the proposed implementation of SI / IT in it, and the functions of each system to [2]be implemented. Based on the data that has been obtained, an analysis will be carried out with several methods in the methodology used by the researcher.

In this study, the methodology used was Ward and Peppard which was supported by SWOT, PEST, Value Chain and McFarlan Strategic Grid analysis methods. The data collection method used is a descriptive qualitative method that provides an overview and explains business conditions inside the Kartika Bandungan Hotel. The results of this research will produce an overview of the application for Hotel Kartika Bandungan so that in the future it can improve existing business processes. So that in the current technological era, Hotel Kartika Bandungan can still lead during hospitality business competition, including being able to increase the acquisition of new visitors, simplify the process of filling in data, checking visitor data, filling in employee activities, determining prospects for employees, as well as in booking and paying for rooms. With the improvement made, customer satisfaction and comfort will be maintained and can even increase.

In a study conducted by Daniel Chris Petra Nabena and Hanna Prillysca Chernoveta entitled "Strategic Planning of Information Systems at Leony Frozen Food Agents in Semarang Using Ward and Peppard Methods". Based on the results of data analysis in this study, Leony Frozen Food still has not implemented SI / IT, so business processes are hampered. Therefore, researchers analyzed Leony Frozen Food to compile SI/IT strategic planning using the Ward and Peppard methods. Then produce a portfolio of information system applications that suit the needs and conditions of Leony Frozen Food. Based on the results of the analysis on Leony Frozen Food, it is proposed that the Bookkeeping Information System, Personnel Information System, Product Data Collection

Information System, Attendance Information System, and Sales Information System are proposed. This proposal aims to improve the effectiveness and efficiency of business processes in Leony Frozen Food [3].

In the study entitled "Strategic Planning of Information Systems in salatiga Slingbag Companies Using Ward and Peppard Methodology by Vido Rional Aprinda and Agustinus Fritz Wijaya. Based on the results of observations and data that have been obtained at the Slingbag Salatiga company, which was then analyzed by the Ward and Peppard method, it produced an application portfolio recommendation containing several proposed information systems that are appropriate according to the needs and conditions of the Slingbag Salatiga company. The proposal is mapped into 4 quadrants of which 1.) Strategic Quadrant: Marketing SI, 2.) Key Quadrant: SI Employee Attendance 3.) Support Quadrant: Upgrade to SI Warehouse 4.) High Potential: SI Finance. Then a gap analysis is carried out, where in the future the proposal can be implemented to support the business activities of the Slingbag Salatiga company in achieving the company's vision and mission [4].

In the study entitled "Strategic Planning of Information Systems Using Ward and Peppard Methodology at SMPN 4 Salatiga" by Theresia Triyuni and Agustinus Fritz Wijaya. SMP Negeri 4 Salatiga is an educational institution that has implemented an information system but has not been optimally implemented because it has not been integrated so that it becomes inefficient in running and supporting its business processes. Therefore, to maximize the application of information systems, it is necessary to strategically plan information systems to achieve the vision and mission and objectives at SMP Negeri 4 Salatiga. There are recommendations for the development of information systems such as: Sipras, Sikewa, Si kelulusan, Sialumni and E-Learning which are mapped into the McFarlan Strategic Grid Portfolio.It is expected to benefit business processes so that it can improve the quality of services and integrity of schools and SMP Negeri 4 Salatiga can develop[5].

2   METHOD

2.1 Ward and Peppard

In the Ward and Peppard method there are several analytical techniques; SWOT, Value Chain, and PEST Analysis to analyze the internal or external business environment along with the risks. Internal business analysis includes aspects of business processes that are running in the company while external business analysis includes competition between other threatening companies.
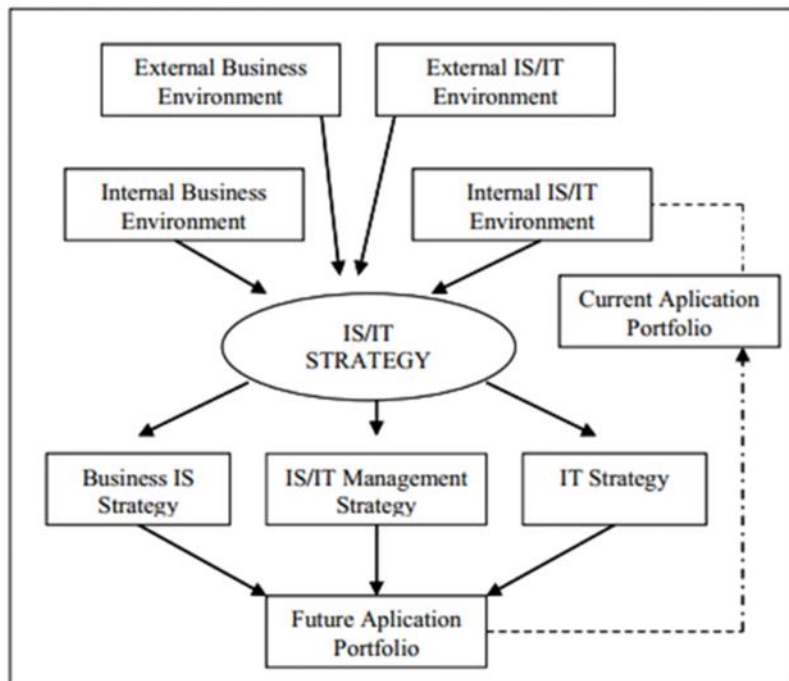
Figure 1. IT/SI Strategic Planning (Ward and Peppard)

In the Ward and Peppard model, there are input stages and output stages. The following is an explanation of the input stages:

1. External Business Environment Analysis. Identifying things that happen outside the company using the PEST method (Political, Economic, Social, Technological)
2. Internal Business Environment Analysis. Identify what the company looks like and business processes to be able to achieve goals and analyze what can be improved or developed so that the company can develop.
3. SI/IT External Environment Analysis. Identifying the trend of using current technology from the side of customers or competitors.
4. SI/IT Internal Environment Analysis. Identify existing IT/SI in the company by knowing whether there is already an IT/SI implementation in it, the suitability of the SI/IT used with existing business processes, and whether existing human resources can already operate the EXISTING IT/SI in the company.

Then, the output stage includes business SI strategy, IT strategy, and SI / IT management strategy. The following is the content of the output stages:

1. Business SI Strategy contains how every part of the company can make good use of SI / IT so that the business goals of the company can be achieved.
2. IT strategy includes the IT and HR management strategy of the company.
3. SI / IT Management Strategy, which contains the SI / IT policies needed in the company to run optimally.

2.2 Stages of Research

The data collection technique used is a qualitative method to analyze activities with problems that arise to be explained in descriptive form. According to Sugiyono, qualitative research methods are research methods based on the philosophy of post positivism, used to examine the condition of natural objects, (as opposed to experiments) where the researcher is as a key instrument, sampling of data sources is carried out purposively and snowball, collection techniques with tri-anggulation (combined), data analysis is inductive or qualitative, and the results of this study emphasize more meaning than [6] generalizations . Data collection will be carried out by observation and direct interviews with relevant sources to obtain the necessary detailed information from the Kartika Bandungan Hotel. Then, this research was analyzed using the Ward and Peppard method in analyzing SI / IT strategic planning at the Kartika Bandungan Hotel as shown in figur 2. From figur 2 Explanation at the research stage:

1. Literature Study
   Literature studies were conducted to collect data and the data was processed as research material and theoretical foundations for SI /IT strategy planning.
2. Data Collection
   Data collection used observation techniques and interviews with the owner of Hotel Kartika Bandungan.
3. Data Analysis
   Analyze data in internal and external business analysis by using value chains to determine the main business processes and supporting business processes at Hotel Kartika Bandungan, then continued with a SWOT analysis to idealize the strengths and weaknesses in the internal business as well as opportunities and threats to external businesses. After that, internal and external IT/SI analysis was carried out using McFarlan Strategic Grid analysis. This analysis will get four categories, namely Strategic, High Potential, Key Operation, and Support.
4. Setting Up SI/IT Strategic Planning
   Develop SI/IT strategic planning based on the data that has been collected, then develop SI/IT business strategies, SI/IT management strategies, and IT strategies.

5. POrthofolio Application
   The last stage is to create an application portfolio as a result of the analysis that has been carried out to be implemented at the Kartika Bandungan Hotel. That way, Hotel Kartika Bandungan can integrate every part of the company and follow technological developments with the development of the company's own business
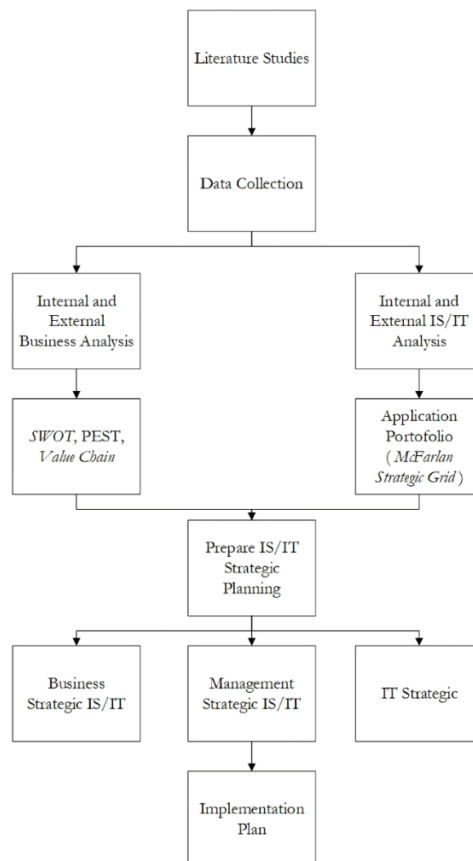

Figure 2. Stages of Research

3   RESULT AND DISCUSSION

3.1 PEST Analysis

PEST is an analysis of the factors of the external environment of a business covering the political, economic, social, and technological spheres. PEST is used to assess the market of a business unit or organizational unit. The direction of pest analysis is a framework for assessing a situation, and assessing a strategy or

position, the direction of the company, a marketing plan, or an idea [7].Throughthis analysis, a new opportunity or threat can be taken for the company, the following is an analysis of PEST Hotel Kartika Bandungan:

1. Politics
   There is Value Added Tax (VAT) of 0.5% and 10% Regional Tax that applies to Hotel Kartika Bandungan.
2. Economics
   In economic conditions, there is competition between hotels in the Bandungan environmental area because Bandungan is a strategic area for tourism.
3. Social
   Hotel Kartika is a family hotel with affordable prices. In social conditions, customers who vacation with their families tend to choose Hotel Kartika because the room price is low and can be for many people. Hotels also often provide attractive promos.
4. Technology
   Hotel Kartika Bandungan can be booked through e-commerce applications such as Traveloka, Pegi Pegi, Mister Aladin, and Tripadvisor so that customers can see the rooms and promos that are currently available.

3.2 Value Chain Analysis

This analysis aims to identify and group the activities that occur in the Kartika Hotel Bandungan environment, both the internal environment and the external environment into several parts to determine SI / IT solutions to generate excellence for the company. A value chain is defined as an instrument used to analyze competitive advantages and create appropriate techniques to enhance those advantages. The overall objective of the value chain analysis is to identify ways to improve the performance of the chain so that all actors are placed in a better position [8]. Value chain analysis is a set of analysis process activities to determine organizational structure, business functions, design, and supporting products or services. Value chain analysis is grouped into main activities (primary activity) and supporting activities (support activity) [9]. Figure 3 is the value chain analysis diagram at the Kartika Hotel Bandungan. Figure 3 illustrates the main activities and supporting activities at the Kartika Bandungan Hotel. The explanation is as follows:

1)Main Activities
   a) Firm Infrastructure: Management, accounting, and administration
   b) Human Resource: Employee recruitment and training
   c) Technology Development: Management of information technology
   d) Procurement: Procurement of office, kitchen and room needs
2)Supporting Activities

a) Inbound Logistics: Storage of raw materials and procurement of raw materials
b) Operation: Checking and carrying out service procedures
c) Outbound Logistics: Service presentation to customers, fulfillment of customer requests
d) Marketing and Sales: Pricing dan E-commerce (Traveloka, Pegi Pegi, Mister Aladin, dan Tripadvisor)
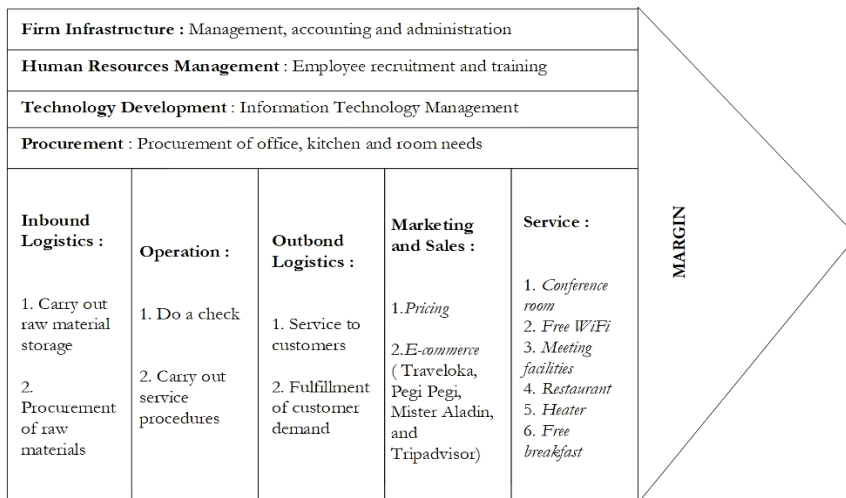e) Service: Conference room, free wifi, meeting facilities, restaurant, heater, free breakfast

Firm Infrastructure : Management, accounting and administration					
Human Resources Management : Employee recruitment and training					
Technology Development : Information Technology Management					
Procurement : Procurement of office, kitchen and room needs					
Inbound Logistics : 1. Carry out raw material storage 2. Procurement of raw materials	**Operation :** 1. Do a check 2. Carry out service procedures	**Outbond Logistics :** 1. Service to customers 2. Fulfillment of customer demand	**Marketing and Sales :** 1.*Pricing* 2.*E-commerce* (Traveloka, Pegi Pegi, Mister Aladin, and Tripadvisor)	**Service :** 1. *Conference room* 2. *Free WiFi* 3. *Meeting facilities* 4. *Restaurant* 5. *Heater* 6. *Free breakfast*	**MARGIN**

Figure 3. Value Chain Analysis of Hotel Kartika Bandungan

3.3 SWOT Analysis

SWOT analysis is used to identify internal company factors consisting of strengths, weaknesses, and external factors, namely opportunities and threats from a company. This process involves determining specific objectives of business or project speculation and identifying internal and external factors that favor and that are not in achieving those objectives[10] . SWOT analysis is used to analyze an organization based on two surrounding factors, namely internal factors and external factors. This analysis of internal and external conditions is used as a frame of reference for making strategic plans. The internal condition of an organization consists of two things, namely strengths and weaknesses. While external conditions are threats and opportunities[11]. The results of the SWOT analysis can later be a comparison to maximize strengths and opportunities and minimize weaknesses and threats from other companies. The following is a SWOT analysis table at Hotel Kartika Bandungan:

Table 1. SWOT Analysis of Hotel Kartika Bandungan

	Strength	Weakness
Internal / **External**	1. Strategic location of the Kartika Hotel Bandungan in the tourism area. 2. Is a family type Hotel. 3. Have a *Hall Room*. 4. Have large parking space for cars and motorbikes. 5. *Free access WiFi* all over the area of Kartika Hotel Bandungan.	1. For unmarried couples cannot stay at Kartika Hotel Bandungan. 2. The spending on WiFi is bigger. 3. HR have not been able to use IS/IT. 4. Kartika Hotel Bandungan still using the manual method in business processes.
Opportunities	**S-O Strategies**	**W-O Strategis**
1. Kartika Hotel still has a large area of land around the Hotel that has not been built. 2. Customers can book rooms on available e-commerce. 3. Kartika Hotel Bandungan often to give promos.	1. Utilize the large area of land around the Hotel to be built. 2. Regularly update information about hotels on available e-commerce. 3. Displaying promos that are currently available on a regular basis on available e-commerce and hotel billboards.	1. Gives a special promo if the previously rejected partner comes back after marriage. 2. Slightly reduce the speed of the WiFi used. 3. Employees do the best service when customers book directly to the hotel.
Threats	**S-T Strategis**	**W-T Strategis**
1. So many competitors in similar fields in the Bandungan area. 2. Kartika Hotel's model doesn't keep up with the times. 3. So many competitors who have implemented the use of IS / IT in their business processes.	1. The room rates offered are relatively stable and competitive with cheaper prices than other hotels for the size of a family hotel. 2. Kartika Hotel Bandungan can carry out renovations and choose an authentic model so that it's not easily outdated.	1. Conduct training for HR so that HR can better understand IS / IT. 2. Making changes by using IS / IT in carrying out its business processes.

3.4 McFarlan Strategic Grid Analysis

McFarlan Strategic Grid is used to map application portfolios as a development of the IT/SI business environment based on the contribution of a company. Mapping is carried out in the strategic quadrant, high potential quadrant, key operation quadrant and support quadrant. From the results of the mapping, it can be a contribution to an application that is used in the long term of a company so that the use of SI / IT can be maximum and in line with the business processes that take place[12]. McFarlan strategic aims to analyze an application or map an SI application based on current conditions, planned conditions and applications that are considered to have the potential to support operational business. The result of the mapping is obtained an overview of the contribution of an SI / IT application to the company and future development. The following is an analysis of McFarlan Strategic Grid at Hotel Kartika Bandungan:

Table 2. McFarlan Strategic Grid Analysis

Strategic	High Potential
• Customer Data Information System • Financial Information System • Employee Payroll Information system • Hotel Needs Information System	• Kartika Hotel Bandungan Website
Key Operational	**Support**
• Attendance Information System • *VHP (Virtual Hotel Program)*	• Social Media (Instagram, Facebook, *etc*)

3.5 SI/TI Business Strategy

The SI / IT Business Strategyhas a design for the use of information systems that are useful in supporting the implementation of the company's business strategy to achieve the goals pursued by the company. From the analysis that has been carried out at the Kartika Bandungan Hotel regarding the SI / IT contained in the Hotel, the SI / IT business strategy that can be recommended is:

1) Create a Customer Data Information System for its usefulness so that the Hotel has information about customers if at any time something untoward happens.
2) Create a Financial Information System for its usefulness so that the Hotel can more easily monitor the incoming and outgoing money and profits obtained by the Hotel.
3) Create an Employee Payroll Information System to make the payroll process easier for each employee and each employee can see the details of the salary and bonuses they receive.
4) Create a Hotel Needs Information System for its use so that the Hotel can find out what the stock of goods has run out or what items are needed by the Hotel.
5) Create a safety Attendance Information System so that the employee attendance process can be monitored easily.

3.6 SI/TI Management Strategy

The SI / IT Management Strategysets out the regulations used at the Kartika Hotel Bandungan for certainty in the implementation of SI / IT in the company so that it can be implemented properly. Based on the results of interviews and analysis that have been carried out to implement SI / IT at Hotel Kartika Bandungan, it is necessary to have employees or human resources who understand SI / IT to control and supervise related hardware and software to be implemented. Therefore, SI / IT training for human resources at Hotel Kartika Bandungan is very necessary so that not only a few employees can operate SI / IT but so that all employees can.

3.7 TI Strategy

Information Technology (IT) strategyis a design for the company's business strategy by using the utilization and management of Teknology Information (IT) resources available in the company. Based on the interviews and analysis that have been carried out, Hotel Kartika already has hardware and software in the office. However, Hotel Kartika Bandungan has not maximized its use. Therefore, the researcher suggested upgrading the hardware to maximize the approval of the system design carried out by the researcher to support the business operations of the Kartika Bandungan Hotel in the future.

3.8 Application Portofolio

At this stage, it will produce recommendations or proposals regarding the information systems needed in each field in accordance with the needs of The Kartika Bandungan Hotel in the form of an application portfolio with McFarlan Strategic Grid tools. Based on the results of the analysis obtained from the above stages from the analysis of the internal and external business environment, the researcher gave several application proposals for the Kartika Bandungan Hotel. Here are the proposed applications:

Table 3. App Portfolio

Application Name	User	Status	Application Type
Customer Data Information System	Owners and Employees	New and Not Implemented	*Website*
Financial Information System	Owners and Employees	New and Not Implemented	*Website*
Employee Payroll Information System	Owners and Employees	New and Not Implemented	*Website*
Hotel Needs Information System	Owners and Employees	New and Not Implemented	*Website*
Attendance Information System	Owners and Employees	New and Not Implemented	*Website*

3.9 Implementation Plan

Based on the proposals that have been made previously, researchers compile an implementation plan in the next 4 (four) years for the implementation of applications at the Kartika Hotel Bandungan. The implementation plan can be seen in Table 4.

Table 4. Implementation Plan

Application Name	2022	2023	2024	2025
Customer Data Information System	▮			
Financial Information System		▮		
Employee Payroll Information System			▮	
Hotel Needs Information System				▮
Attendance Information System				▮

Authors have the target to prepare an implementation plan in the next 4 (four) years for the implementation of the application at the Kartika Hotel Bandungan. Every year at least one application will be implemented at Hotel Kartika Bandungan. Starting from the implementation of the Customer Data Information System in 2022, the Financial Information System in 2023, the Employee Payroll Information System in 2024, and the Hotel Needs Information System and Attendance Information System in 2025. Researchers will try to implement more than 1 application in 1 year at The Kartika Hotel Bandungan. The implementation plan listed in **Table 4** is the minimum year period for implementing the application so that the researcher can also implement the five applications faster than the specified time.

4   KESIMPULAN

Based on the results of data analysis in this study, Hotel Kartika Bandungan has a lag in the field of technology because other hotels around it already have their own system. Due to the absence of an integrated system, it is necessary to plan an IT / SI strategic plan that suits the needs and conditions of the Kartika Bandungan Hotel. In this study, the method used was Ward and Peppard which was supported by SWOT, PEST, Value Chain and McFarlan Strategic Grid analysis methods. Then, the results of this study produced a portfolio of information system applications that suit the needs and conditions of Hotel Kartika Bandungan. Based on the results of the analysis at the Kartika Hotel Bandungan, several applications are proposed, namely:
1.   Customer Data Information System, its use so that the Hotel has information about customers if at any time something undesirable happens.
2.   Financial Information System, its use to make it easier for the Hotel to monitor the money in and out and the profit obtained by the Hotel.
3.   Employee Payroll Information System, its use makes the payroll process of each employee easier, and each employee can see the details of the salary and bonuses they receive.

4. Hotel Needs Information System, its use so that the Hotel can find out what the stock of goods has run out or what items are needed by the Hotel.
5. Attendance Information System, its use so that the employee attendance process can be monitored easily.

This proposal aims to make Hotel Kartika Bandungan can increase the effectiveness and efficiency in carrying out business processes, as well as make Hotel Kartika Bandungan still able to lead during hotel business competition. Based on the proposed application, it is expected to be implemented within the next four years.

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