



## **Strategic Planning Information Systems Industrial Work Lecture Program (Case Study: CV. Laksana Karoseri)**

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### **Abstract**

CV. Laksana Karoseri is a bus carousel company from Ungaran that assembles various bus bodies. In an effort to help the development of good human resources, every year CV. Laksana Karoseri has an industrial work lecture program that accepts hundreds of internship students every year. However, the program has not been running and is well organized because some activity processes have not run optimally, for example, the acceptance of internships, attendance and scheduling of internships that are not managed properly. Therefore, it is necessary to have SI / IT strategic planning to improve management and deal with problems that occur in industrial work lecture programs at CV. Laksana Karoseri. This research was conducted by conducting interviews and observations on CV. Laksana Karoseri. The method used to carry out this SI / IT strategic planning is the Ward and Peppard method which includes Value Chain, SWOT, PEST and Five Force Model analysis which then produces an application portfolio, namely the Registration Information System and Industrial Work Lecture Details, the website and mobile version of the Scheduling and Attendance Information System, the Weekly Activity Log Book Information System and the Internship Report Document Archive Information System which was mapped using McFarlan's analysis. The results of the SI/IT strategic plan will be implemented within four years.

**Keywords:** Strategic Planning, Information Systems, Ward and Peppard

## **1. INTRODUCTION**

In this industrial era 4.0, the world of work requires everyone to compete to show that they are worthy in their field of work. Every human being is forced to work skilled, creative, competent, innovative, expert in their field and uphold integrity, this is what the company will need as a worker who has high work values. The application of information technology is a very important step in an organization. With the existence of information technology in an organization, business activities that take place will be more effective and efficient [1]. Every company needs computerized technology and information systems. Because of these advances, the process of disseminating information has become faster and easier to do [2].



The development of information systems and information technology (SI / IT) in companies today leads to the use of SI / IT which has entered and become an alternative in the management and implementation of company activities [3]. The strategy of an organizational or corporate information system is an important part of achieving the goals of the organization or company and serves as a guide in the preparation of strategies for the business units of the organization or company [4]. In order to achieve what has been planned and desired, of course, we must have an effective and efficient SI/IT design [5].

CV. Laksana Karoseri is a bus company from Ungaran, Semarang Regency, Central Java. Like Karoseri as one of the well-known carousels in Indonesia that assembles various kinds of bus bodies, it also has loyal customers who are well-known bus companies in Indonesia such as Sumber Alam and Raya. To help the development of intelligent and competent human resources for the future as well as new employees who are ready to work, every year CV Laksana Karoseri receives a lot of students who apply for industrial work courses or internships to CV Laksana. No wonder that every year, CV. Laksana Karoseri has received hundreds of interns from every city in Indonesia. CV. Laksana Karoseri has more than one hundred students and smk students who actively carry out internships or industrial work lectures in each period. CV. Laksana Karoseri has a principle to always accept interns to help the development of good human resources.

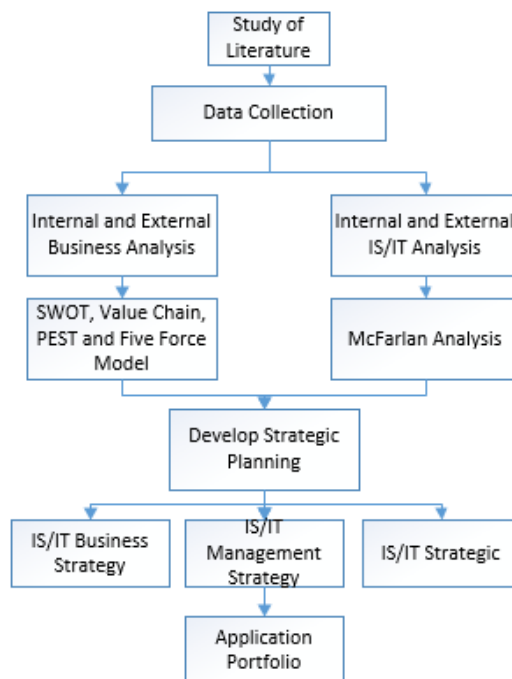
Problems that arise in the internship program that are on the CV. Laksana the admissions series of students who apply to carry out industrial work lectures or internships themselves are not well organized, for example some cases that occur, proposals and submission letters that have been received by the HRD department are lost and result in prospective interns having to send proposals and submission letters several times. Not only that, but absenteeism for interns is also still done by writing papers which results in several problems such as missing absentee papers so that there are several cases where students who have been present on that day are not affected. The daily scheduling of entry is not well organized. The number of smk students and students who register for internships at CV. Laksana Karoseri, each internship period can reach hundreds, especially students from automotive engineering, electronics, machinery, and other majors that require students to go down to the production department. This makes it difficult for the supervisors to control and supervise the interns because of the large number and daily scheduling of entry for the interns.

The purpose of this research itself is to help, develop and maximize industrial work lecture activities or internship activities carried out by CV. Laksana a carousel so that there are no problems such as missing proposal documents or messy absences and scheduling with the strategic planning of the information system. In this study itself will use the Ward and Peppard method, considering that many

previous strategic planning studies used the same method to find out the SI / IT environment in the CV. Laksana Karoseri.

## 2. METHOD

This research itself uses qualitative methods, qualitative research methods are research methods used to examine the condition of natural objects where the researcher is a key instrument, planning is determined in advance what will be done, how to do it, what should be done, and who does it [6]. The goal is to describe and analyze the activities or activities of the internship program at HRD and CV. Laksana Karoseri. This method is obtained through experience and problems that occur in the field.



**Figure 1.** Stages of Research

This research consists of several stages, the first of which itself collects references from various sources on the internet. After that, it will start collecting data by conducting interviews and observations in the company. Data collection is carried out directly to the case study site and make observations and collect data through question and answer conducted with HRD and CV Training employees. Like a series related to SI / IT which is used in industrial work lectures or internships in HRD and CV Training. Like Karoseri.

After collecting data through these observation activities, an analysis of the business environment and SI / IT environment, both external and internal, will be carried out using SWOT, Value Chain, PEST, McFarlan analysis and five force model. Through this analysis, a strategic planning of the information system will be produced which will consist of business strategic, SI / IT management strategy and IT strategic. After that, the planning will create a portfolio of applications.

## **2.1 SI/IT Strategic Planning**

SI/IT strategic planning is the process of identifying a portfolio of computer-based SI applications that will support the organization in implementing its business plan and realizing its business objectives [7]. SI/IT Strategic Planning is used to align between the needs of business strategy and SI/IT strategy to gain added value from an organization in terms of competitive advantage [8].

## **2.2 SWOT Analysis**

A SWOT analysis or SWOT matrix is a tool used to assess the strengths, weaknesses, opportunities, and threats of a product, project, or business. SWOT analysis is a tool that helps decision makers to develop the type of strategy of a company or agency. SWOT analysis uses a matrix to explain the development strategy of a company or agency. [9].

## **2.3 Value Chain Analysis**

Value Chain analysis is a set of business activities carried out by an institution, since an institution is basically a collection of activities to achieve a specific goal. The principle of this value chain is how to map the entire work process or activity within the institution into two parts, namely, the main activity and supporting activity [10].

## **2.4 PEST Analysis**

PEST analysis was carried out by looking at the external business environment which looked at four factors in the political field, the economic field, the social field and the technology field. This analysis is to understand the growth and direction of potential in the organization [11].

## **2.5 Analisis Five Force Model**

The Five Force Model analysis is made by looking at the external business environment as well as paying attention to the five competitive forces. With this analysis, we will be able to see what the current condition of the organization is.

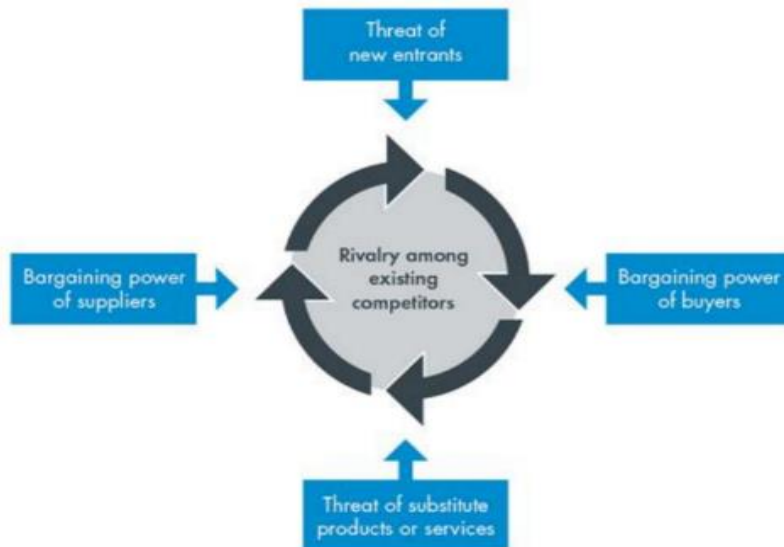


Figure 2. Five Force Model

## 2.6 McFarlan Analysis

McFarlan's analysis was made with an eye on the internal environmental conditions of SI/IT. The analysis carried out will be related to information systems that are very important in the future.

Table 1. McFarlan Analysis

Strategic	High Potential
Applications that are very important and critical to maintain business strategy.	Applications applications that may be important to achieve success.
Application applications that the organization depends on for success.	Applications that are valuable but not critical in achieving success. .
Key Operational	Support

## 3. RESULT AND DISCUSSION

### 3.1 Internal and External Business Environment Analysis

The first stage that needs to be done in strategic planning of information systems in the industrial work lecture program owned by CV Laksana Karoseri is to conduct a SWOT analysis (Strength, Weakness, Opportunity, Threats) with the

aim of knowing the strengths, weaknesses, opportunities, and threats by looking at the internal and external business environment. Knowing the strengths and weaknesses of using SWOT is used to identify the internal environment while opportunities and threats are used to identify the external environment.

**Table 2.** SWOT Analysis on the HRD Industry Work Lecture Program and Training Like a Series

Strength	Weakness
<ul style="list-style-type: none"> <li>● Laksana Karoseri is a bus car body company that already has a big name</li> <li>● Accepting internship students from various majors.</li> <li>● It has become an interest for many interns to carry out internships or industrial work courses there</li> </ul>	<ul style="list-style-type: none"> <li>● For internship activities themselves, they still do not use IS/IT so that they are not optimal in implementing internship activities</li> <li>● The process of accepting internships is not good and organized</li> <li>● Poor scheduling of internship students</li> <li>● Filing of internship student documents is not good</li> <li>● Lack of manpower in activities for student interns</li> </ul>
Opportunity	Threats
<ul style="list-style-type: none"> <li>● Internship program activities at Laksana in collaboration with various well-known universities and vocational schools</li> </ul>	<ul style="list-style-type: none"> <li>● The risk of spreading COVID-19 due to the large number of students doing internships and not being limited to an internship quota in each period</li> </ul>

**Table 2 Captions:**

The results of the SWOT analysis in **Table 2** were obtained after conducting research and conducting interviews and discussing with the Head of HRD CV. Laksana Karoseri. After obtaining a SWOT analysis, it can be used for strategic planning of information systems in the Activities of the Laksana Karoseri internship program.

### 1. Strength and Opportunities (SO)

Utilizing the big name of the company as an attraction for students to carry out internship activities there and develop the use of information systems so that the implementation of internships can be maximized. That way, Laksana Karoseri can also benefit from the presence of new graduate students from various majors who have carried out internships there and are interested in working at CV Laksana Karoseri.

### 2. Strength and Threats (ST)

By working together and having support from various universities and vocational schools, communication can be held between CV Laksana Karoseri and universities and vocational schools to overcome the problem of the number of students registering too much.

### 3. Weakness and Opportunities (WO)

Using cooperation and support from various universities and vocational schools so that later when students or SMK students who have just graduated and have done internships at CV Laksana Karoseri can be absorbed into new workers.

### 4. Weakness and Threats (WT)

With the presence of experts in the IT field, it can be done to develop the use of information systems in industrial work lectures or student internships so that the implementation itself becomes better. Related matters such as the attendance system, scheduling of internship students and various problems that occur in its implementation can be more organized. As well as to reduce the risk of transmission of COVID-19, interns who want to register for internships at CV Laksana Karoseri are required to be vaccinated up to the second dose. Then all business processes in the HRD and Training industry work lecture program like Karoseri will be mapped using Value Chain analysis.

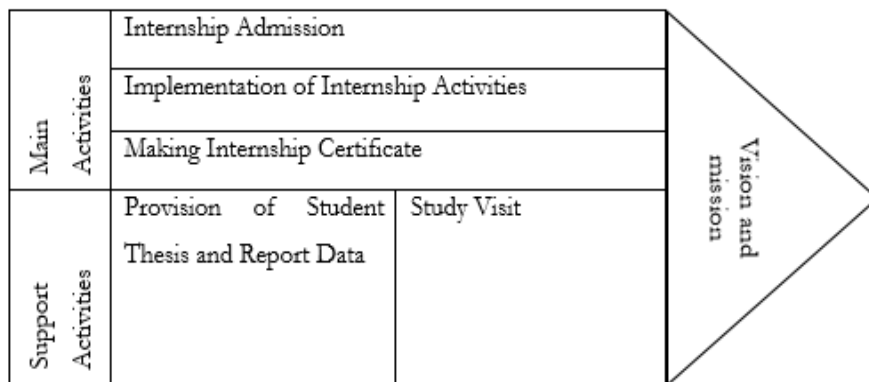


Figure 3. Value Chain in the Industrial Work Lecture Program Like a Series

Caption in **Figure 3**:

Internship Acceptance, Implementation of Internship Activities and Making Certificates are basically the main activities of industrial work lecture activities that have been running for several years. Meanwhile, the Provision of Student Report and Thesis Data is a supporting activity, because not all students carry out industrial work lecture activities at CV. Laksana Karoseri needs data for their thesis. Then for the excitement of study visits themselves are not the main activity because these activities do not routinely exist and are not the focus in the industrial work lecture program. This result was obtained through an interview with the Head of HRD CV. Laksana Karoseri.

In the Value Chain above, it can be concluded that:

The Main Activities consist of:

1. Internship Admission
2. Implementation of Internship Activities
3. Creation of Internship Certificate

Supporting Activities consist of:

1. Provision of Student Report and Thesis Data
2. Study Visits

The next stage is to conduct a PEST analysis which aims to analyze internal and external factors with four factors, namely political, economic, social, and technological.

#### **a) Politic**

Matters related to internships themselves are listed in the Manpower Law. However, the concept of internship in the Manpower Law itself is not included in the type of internship or industrial work lectures that students undergo in academic demands from universities. According to the Ministry of Research, Technology and Higher Education which issued Ministerial Decree No. 123 / M / KPT / 2019 concerning Industrial Internships and Recognition of Semester Credit Units (SKS) for college internships in 2019, learning is student-centered which combines the process of learning lectures and professional work as a whole in the undergraduate program curriculum. Seeing this, Laksana Karoseri with his own industrial work lecture supervisors must coordinate with student supervisors from universities so that a combination of the college learning process and good work practices can be created.

#### **b) Economy**

In economic factors themselves do not have much influence. Some of the things that happen are students who want to carry out their own industrial work lectures, not all of them come from the closest area to the CV. Laksana Karoseri, many of the students who carry out industrial work lectures come from outside the city so



that students must rent a place to live in the area near the CV. Laksana Karoseri to be able to carry out internships there. There are some students who canceled their industrial work studies because of these considerations due to costs. Students also must go out of the company during lunch break because there is no canteen in the company. The long distance for students who come from other regions is also a factor that makes students cancel their interest in carrying out industrial work lectures in CV Laksana Karoseri.

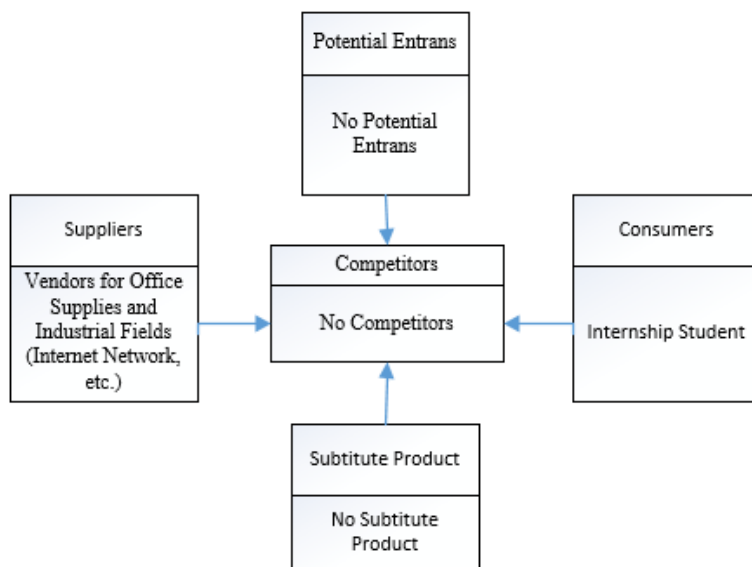
### c) Social

Some students have the idea that industrial work lectures or internships that run on a CV. Laksana Karoseri is only intended for a few specific majors such as mechanical engineering and automotive engineering due to CV. Laksana Karoseri itself is a bus company. But, students from various other majors such as psychology themselves can carry out industrial work lectures in the hr field there.

### d) Technology

With the problems that occur in industrial work lecture activities on a CV. Laksana Karoseri itself, such as the internship admission process is not well organized, attendance and scheduling have also not gone well, CV. The Karoseri must develop their information system to alleviate these problems.

After conducting the PEST analysis, a Five Force Model analysis will be carried out to see the five competitive forces.



**Figure 4.** Five Force Models in the HRD Industry Work Lecture Program and Training CV Laksana Karoseri

### 3.2 Analisis SI/TI

Then, the next stage is to conduct an analysis of the internal SI condition in the industrial work lecture program at HRD and Training Laksana Karoseri using McFarlan's analysis. The results of the analysis were obtained after conducting interviews with employees at HRD CV. Laksana Karoseri.

**Table 3.** McFarlan's analysis on the industrial work lecture program Laksana Karoseri

Strategic	High Potential
1. Social Media	-
2. Ms. Office (Word dan Excel)	3. Email Like a Series 4. WhatsApp
Key Operational	Support

### 3.3 Business Strategy SI/TI

In the industrial work lecture program in HRD and Training Laksana Karoseri itself has not used a good information system to support the implementation of these activities every year. From these results, several recommendations were produced to maximize the activities of the industrial work lecture program in Laksana Karoseri:

1. Creating an information system in the industrial work lecture program Laksana Karoseri, especially in the industrial work lecture admissions section which will make it easier for students to submit proposals.
2. Adding SI / IT expert human resources in the HRD and Training section as a division that organizes industrial work lecture activities.

### 3.4 Management Strategy SI/TI

Currently, HRD and Training Laksana Karoseri does not have a section that specifically takes care of the industrial work lecture program. Therefore, it is necessary to have a separate division in HRD that takes care of matters related to industrial work lectures.

### 3.5 Strategy TI

HRD and Training Laksana Karoseri needs to make adjustments or upgrades to devices or hardware in divisions that are specifically made to take care of industrial work lecture programs. Given that the number of smk students and students who

carry out industrial work lectures or internships there can reach hundreds of people every period so that the data that will enter is very large and a good device is needed.

### 3.6 Application Portfolio

After doing some analysis, you can take an application proposal to maximize the industrial work lecture program in Laksana Karoseri. The results of the application portfolio were obtained after conducting an analysis and knowing what kind of application Laksana Karoseri needed to overcome problems that arise in industrial work lecture activities through an interview with the Head of HRD CV. Laksana Karoseri.

**Table 4.** SI/IT proposal for industrial work lecture program Laksana Karoseri

SI Recommendations	User	Application Type
Registration Information System and Industrial Job Lecture Details	Intern student	Website
Scheduling and Attendance Information System	Intern student and Supervisor	Website and Mobile
Weekly Activity Log Book Information System	Intern student and Supervisor	Website
Internship Report Document Archive Information System	HRD Employees	Website

**Table 4** Captions:

#### 1. Registration Information System and Industrial Work Lecture Details

With the registration information system and details of industrial work lectures, the internship admission process becomes more organized. Some of the cases that occurred were missing proposal documents so that students had to resend the internship proposal. With the Registration Information System and Industrial Work Lecture Details, students can immediately submit proposals there so that no more proposal documents are lost. Students can also find out the details of industrial work lecture activities according to their respective majors.

#### 2. Scheduling and Attendance Information System

The Scheduling and Attendance Information System aims to overcome problems that occur regarding scheduling and messy attendance. Because the number of

students undergoing industrial work lecture activities is very large, supervisors have difficulty providing information regarding the rotation of daily schedules from students and supervising attendance. With the Scheduling and Attendance Information System, students can find out information on schedule changes faster and actual.

### 3. Weekly Activity Logbook Information System

The Weekly Activity Logbook Information System aims to maximize the effectiveness of industrial work lecture activities because with this system, both supervisors in the field and supervisors from universities or schools can find out more clearly what student weekly activities are like on CV. Laksana Karoseri.

### 4. Information System for Internship Report Document Archives

The Internship Report Document Archive Information System aims to accommodate and archive Internship Reports from students who have finished carrying out industrial work lectures. Internship reports from previous students can also be accessed by new students who carry out industrial work lectures in the future with the aim that the previous student internship report document can be used as a reference for new students to make internship reports. Based on the SI/IT proposals in **Table 4**, here is a mapping of information systems with McFarlan analysis that will be implemented in the future.

**Table 5.** SI/IT proposal mapping with McFarlan Analysis

Strategic		High Potential	
1.	Registration Information System and Industrial Job Lecture Details	1.	Scheduling and Attendance Information System (mobile version)
		2.	Weekly Activity Log Book Information System
1.	Registration Information System and Industrial Job Lecture Details	3.	Internship Report Document Archive Information System
2.	Scheduling and Attendance Information System		
Key Operational		Support	

Description in **Table 5:**

1. Priority 1: Key Operational

The applications that are the top priority are the Scheduling and Attendance Information System and the Registration Information System and Details of Industrial Work Lectures. This application is a top priority because it will greatly support the main activities, namely the acceptance of internships and the implementation of internships. With this system, it is hoped that it will be able to overcome problems that often occur such as missing proposal documents or poor absences and scheduling problems. The Scheduling and Attendance Information System itself is expected to be completed in 2022 for the website version while for the Registration Information System and Industrial Work Lecture Details in the 50-70% stage by prioritizing the features in the submit proposal or registration section while information about the details themselves can be completed in the following year, the reason is because registration is an important and priority part because there are often problems there while for the details of activities students can still find out through guidance or notification from supervisors in the field.

2. Priority 2: Strategic

The application that is the second priority is the Registration Information System and Industrial Work Lecture Details. If in 2022, you have completed most of the applications, namely in the registration section, in the next year you can complete the details and information on the activities to be carried out.

3. 3rd Priority: Support

The application that needs to be developed at the next stage is the Internship Report Document Archive Information System. This application will certainly be a support in the implementation of industrial work lecture activities. With this filing system, it will help students in writing their internship reports during industrial work lecture activities.

4. Priority 4: High Potential

The applications that need to be developed at this stage are the Weekly Logbook Information System and the mobile version of the Scheduling and Attendance Information System. The Weekly Logbook Information System will be the potential to maximize communication between students, supervisors in the field and supervisors from universities because supervisors can find out how student activities are progressing in Laksana Karoseri. Meanwhile, the Scheduling and Attendance Information System was created to increase the ease of students in accessing daily schedules and attendance, considering the frequent use of smartphones in current students.

### 3.7 Application Proposal Implementation Mapping

After going through various stages and producing an application proposal, it is necessary to adjust the time to implement the application proposal. The following is the application application within the next four years.

**Table 6.** Application Proposal Implementation Mapping

Strategic	2022	2023	2024	2025
Scheduling and Attendance Information System				
Registration Information System and Industrial Job Lecture Details				
Internship Report Document Archive Information System				
Weekly Activity Logbook Information System				
Scheduling and Attendance Information System (mobile version)				

**Table 6 Description:**

The Scheduling and Attendance Information System will be a top priority because it is a Key Operational so it must be implemented immediately in 2022. For the Registration Information System and Industrial Work Lecture Details itself will begin to be applied in 2022 to 2023 in stages with the priority of completing the registration part, then after that the details of the industrial work lecture. Then the next priority is the Internship Report Document Archive Information System which will begin to be implemented in 2023. Then in 2024, the Weekly Activity Logbook Information System as High Potential will be implemented and then in 2025, the mobile version of the Scheduling and Attendance Information System will begin to be developed.

## 4 CONCLUSION

Based on the results of the analysis that has been carried out, it can be concluded that the industrial work lecture program runs on the CV. Laksana Karoseri has not used good SI/IT. Therefore, it is necessary to carry out strategic planning of information systems which then produces a portfolio of applications that can maximize the industrial work lecture program in the CV. Laksana Karoseri. Based on this analysis, there are several application proposals, namely the Registration Information System and Industrial Work Lecture Details, the website and mobile

version of the Scheduling and Attendance Information System, the Weekly Activity Logbook Information System, and the Internship Report Document Archive Information System. With these several applications, it is hoped that the industrial work lecture program at CV. Laksana Karoseri can run well, able to overcome problems that occur regarding missing internship admission documents and absenteeism and poor scheduling. The implementation of such applications will be implemented in the next four years.

## REFERENCES

- [1] 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.
- [2] Anharudin, "Perencanaan Strategis Sistem Informasi Untuk Meningkatkan Pelayanan Menggunakan Metode Ward And Peppard ( Studi Kasus : Pt Pos Indonesia Cilegon - Banten)," *J. PROSISKO*, vol. 2, no. 2, pp. 1–4, 2015.
- [3] Y. Firmansyah, "PERENCANAAN STRATEGIS SISTEM INFORMASI DAN TEKNOLOGI INFORMASI MENGGUNAKAN METODE WARD AND PEPPARD PADA PT AKCAYA UTAMA PRESS (PONTIANAK POST) Yoki," *J. Khatulistiwa Inform.*, vol. vol 3, no. no 1, pp. 105–118, 2015, [Online]. Available: <http://ejournal.bsi.ac.id/ejurnal/index.php/khatulistiwa/article/download/2304/1597>.
- [4] Y. Septiana, "PERENCANAAN STRATEGIS SISTEM INFORMASI DENGAN PENDEKATAN WARD AND PEPPARD MODEL (Studi Kasus: Klinik INTI Garut)," *J. Wawasan Ilm.*, vol. 8, no. 1, pp. 8–24, 2017.
- [5] M. B. Nugraha, G. Pralelda, and R. S. Dewi, "Perencanaan Strategis Sistem Informasi Pada Universitas XYZ Menggunakan Metode Ward and Peppard," *JURIKOM (Jurnal Ris. Komputer)*, vol. 7, no. 1, p. 34, 2020, doi: 10.30865/jurikom.v7i1.1788.
- [6] A. Mayasari, Y. Supriani, and O. Arifudin, "Implementasi Sistem Informasi Manajemen Akademik Berbasis Teknologi Informasi dalam Meningkatkan Mutu Pelayanan Pembelajaran di SMK," *JHIP - J. Ilm. Ilmu Pendidik.*, vol. 4, no. 5, pp. 340–345, 2021, doi: 10.54371/jhip.v4i5.277.
- [7] A. Wedhasmara, "LANGKAH-LANGKAH PERENCANAAN STRATEGIS SISTEM INFORMASI DENGAN MENGGUNAKAN METODE WARD AND PEPPARD | Wedhasmara | Jurnal Sistem Informasi," *Jsi*, vol. VOL. 1, NO, no. 1, pp. 14–22, 2009, [Online]. Available: <https://ejournal.unsri.ac.id/index.php/jsi/article/view/704>.
- [8] M. F. Johannis, A. R. Tanaamah, and H. P. Chernovita, "Perencanaan Strategis Sistem Informasi Menggunakan Metode Ward and Peppard (Studi Kasus: Cv.Grafika Prima Mitra Ambon)," *Sebatik*, vol. 23, no. 2, pp. 611–

- 618, 2019, doi: 10.46984/sebatik.v23i2.818.
- [9] M. Ary and R. Sanjaya, "Strategi Perencanaan Dan Pengembangan Program Studi Menggunakan Analisis Swot (Studi Kasus Program Studi Sistem Informasi Ars University)," J. Tekno Insentif, vol. 14, no. 1, pp. 1–8, 2020, doi: 10.36787/jti.v14i1.198.
- [10] W. Irmayani, "Perancangan Strategis Sistem dan Teknologi Informasi pada Dinas Cipta Karya , Tata Ruang , dan Kebersihan Kabupaten Kubu Raya, Kalimantan Barat," Juisi, vol. 02, no. 01, pp. 16–25, 2016, [Online]. Available: <https://journal.uc.ac.id/index.php/JUISI/article/view/112/105>.
- [11] Y. Utami, A. Nugroho, and A. F. Wijaya, "Perencanaan Strategis Sistem Informasi dan Teknologi Informasi pada Dinas Perindustrian dan Tenaga Kerja Kota Salatiga," J. Teknol. Inf. dan Ilmu Komput., vol. 5, no. 3, p. 253, 2018, doi: 10.25126/jtiik.201853655.