IMPLEMENTATION OF THE SMART CAMPUS PROGRAM IN INDONESIA NAVAL TECHNOLOGY COLLEGE USING THE CIPP MODEL

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ABSTRACT

The smart campus designed by Indonesia Naval Technology College (STTAL) by utilizing Information Communication Technology (ICT) is an effort to improve the professionalism of soldiers in responding to challenges in the era of the Industrial revolution 4.0 in the field of science and technology. The purpose of this study was to determine how the implementation of the smart campus program in improving educational operational services and organizational development, as well as how effective the results of the STTAL smart campus program implementation were. In assessing the success of a work program, the CIPP model approach is used. The object of this research is the implementation of aspects of technoware, infoware, orgaware, and humanware on the Smart campus program which is implemented by STTAL by evaluating Context, Input, Process, and Product. The result of this research is that it is known that the achievements of the implementation of the smart campus program that has been launched by STTAL since 2015 have been quite effective, although there are still things that need to be improved and improved in the implementation process in supporting the educational process and the future development of the STTAL organization.

Higher education has a great influence on the socio-economic development of the country, linking science and research with the goal of national modernization. In the era of the industrial revolution 4.0, preparation for mastery of maritime technology and preparation of human resources became the urgency of the Indonesian Navy's education (Mabesal, 2006). The demands of the rapid development of science and technology affect the development of the modernization of maritime technology and graduate qualifications, so adjustments need to be made by evaluating and developing the educational curriculum (Apriyani R., Bandono, Purnomo, & Sunarta, 2019). In the global era, universities face the challenge of producing graduates who can adapt according to the times, can provide more modern education by applying technology through the smart campus concept (Cordiaz, 2017). However, not a few have not succeeded in implementing the Tri Dharma of Higher Education, due to poor planning, unprepared experts, inconsistent policies, and inadequate infrastructure.

The implementation of the national defense strategy that is carried out relies on infrastructure and mastery of naval technology, especially the Integrated Fleet Weapon System (SSAT). Through the 100-day Kasal priority program in 2018, namely the mastery of marine technology which consists of 3 aspects, namely aspects of technology utilization, aspects of human resources, and the development of education and training systems (Ahmadi, Putra, Suharyo, Ariyoko, & Susilo, 2018) (Apriyani R., Bandono, Purnomo, & Sunarta, 2019). The existence of STTAL in implementing the Tri Dharma of Higher Education has an influence in innovating and contributing (Apriyani R., Bandono, Purnomo, & Sunarta, 2019) as well as preparing competitive human resources for soldiers to support the readiness of the Navy's operations (Ariyoko, Putra, & Suharyo, 2019) by applying the principle of sustainability as an agent of change by adopting an integrated approach towards Research University.

Anticipating the rapid development of technological advances in the era of the industrial revolution 4.0, STTAL utilizes these technological developments into a smart campus

system, supported by complete infrastructure, to improve quality of the education system (Bukit, Bastari, & Putra, 2020). A smart campus is designed as a learning medium in utilizing information technology to support education management at STTAL (Bukit, Bastari, & Putra, 2020). Efforts to achieve the goal of using a smart campus require a careful planning scheme and a thorough need analysis (Supratman, Defit, & Vitriani, 2019). The results of research by Ayip Rivai (2019) to improve the professionalism of soldiers in the fields of science and technology, it is necessary to increase the quality and quantity, laboratory infrastructure facilities, research publications for lecturers and students at national and international levels, so that they can support operational learning activities and the development of research programs new regulations and regulations for changing the curriculum for each research program leading to the field of science and technology in the marine sector (Prabowo, Fanani, Moeljadi, & Domai, 2019). Therefore, the use of Information Communication Technology (ICT) in a smart campus is one of the important criteria in achieving the success that STTAL needs to have, through indicators of technoware, infoware, orgaware, and humanware with an effective, efficient and productive management system.

The purpose of this study was to determine how the implementation of the smart campus program in improving educational operational services and organizational development, as well as how effective the results of the STTAL smart campus program implementation were. The object of this research is the implementation of the aspects of technoware, infoware, orgaware and humanware on the Smart campus program implemented by STTAL. The research method is descriptive qualitative to define a situation or phenomenon as it is (Sukmadinata, 2007), while the method of collecting data and information is through observation and interviews with 3 informants representing the Department of Operations and Education, the Department of Data Processing Information, and the Quality Assurance Agency, where information is taken using the Context, Input, Process, and Product (CIPP) model approach.

MATERIALS AND METHODS OF RESEARCH

The smart campus is a concept that combines a learning system with the use of information technology, thus facilitating the teaching and learning process and other activities on campus (Iqbal, Arzaki, & Erfianto, 2018). Smart campus implementation includes five things, including Smart Technology (technology), Smart Governance (governance), Smart Environment (academic environment), Smart Service (academic services), and Smart Policy (rules and policies) (Pratama, 2016). The application of a smart campus technology system in the management of the education sector will increase efficiency and effectiveness in knowing the value of stakeholder satisfaction so that students actively develop themselves (Palantei, et al., 2019). STTAL's smart campus concept is a breakthrough in educational technology, utilizing technology support to develop the education system through innovations created and developed with a background of providing benefits in supporting the implementation of effective and efficient education management at STTAL (Bukit, Bastari, & Putra, 2020). STTAL's smart campus program includes e-catalog, e-library, online KRS, calculating student GPA, student financial processes, and so on by integrating all core education management processes into an information system to create ease and speed in accessing data.

CIPP which consists of context evaluation, input evaluation, process evaluation, and product evaluation has a purpose as an evaluation through a model approach to improve and improve the program that has been planned, not to provide evidence (Stufflebeam, 1983). The application of the CIPP evaluation model has been used to evaluate various educational projects and institutions as a comprehensive framework that guides planning, implementing, and evaluating an institution's program (Zhang, et al., 2011). Thus context assessment is used to inform planning decisions, input evaluation is used to serve structural decisions, process evaluation is used to guide implementation decisions, and product assessments are used to serve decision making. The evaluation objectives of the CIPP model (Stufflebeam, 1983) are as follows:

- Establish and provide information data that is used to assess alternative decisions that have been made;
- Help the audience to evaluate the educational program or object and add to the benefits of the program;
- Assist in program and policy development.

Where then, the results of the assessment result from the evaluation of the smart campus program are given a value according to a rating scale of 1 to 5, with the following information:

- Score 1: Very Poor;
- Score 2: Not Good;
- Score 3: Good enough;
- Score 4: Good;
- Score 5: Very Good.

This rating scale is used to help facilitate the assessment of the achievements that have been made.

RESULTS AND DISCUSSION

To find out the implementation of the smart campus program in improving educational operational services and developing the STTAL organization, an assessment was carried out, which was given to informants and analyzed the results of the documentation study, with the following information.

Context Aspect. Evaluation of the smart campus concept consists of goal setting, objective setting, policy, and monitoring. The results of the assessment obtained are as follows:

Table 1 – Context Evaluation of STTAL's Smart Campus Program

No.	Component	Evaluation				Average
		Informant 1	Informant 2	Informant 3	Document	
1	Goal Setting	4	4.3	4	4	4.08
2	Objective Settings	4.3	4.2	4.5	4.3	4.33
3	Policy	5	5	5	5	5.00
4	Monitoring	4	4	4	4	4.00

- The goal-setting component. In this stage STTAL formulates the vision and mission to be achieved in the implementation of the STTAL smart campus program development program, the evaluation score is obtained with an average value of 4.08 with good information;
- Objective setting component. In this stage, determine the form of Smart campus program development through workshops, schedule program implementation, prepare and complete infrastructure facilities, carry out administration of staff and student data collection as well as course programs, and determine the evaluation of the Smart Campus program achieved, obtaining an average score. 4.33 with good description;
- Policy component. These are the rules and policies given by the STTAL leadership so that they can be used as guidelines in implementing the program optimally, the average score is 5.00 with very good information;
- Monitoring Component. It is an activity that needs to be carried out by STTAL in supervising and controlling the implementation and maintaining the results in optimally implementing the smart campus program, with an average score of 4.00 with good information.

Based on Table 1, it can be concluded that the assessment of the context of goal setting, objective setting, policy, and monitoring with very good results is evidenced by the average score approaching the highest score of 5 (five). Thus, the input component aspects in the smart campus program can be maintained and need to be improved with planning, implementation, and monitoring to support and implement the smart campus program to be more focused, directed, coordinate with each other and involve all stakeholders according to their competencies in supporting the success of the STTAL smart campus program.

Input Aspect. Evaluation of inputs to analyze preparatory activities to achieve the goals of the smart campus program. This study includes components of action plans,

organizational structures, procedures and mechanisms, control and supervision, human resources, infrastructure, and budgeting of the smart campus program from the operations and academic departments as well as the data processing information department as implementers in the smart campus program in STTAL, then generated as follows:

Table 2 – Evaluation of Input - STTAL's Smart Campus Program

No.	Component	Evaluation				Average
		Informant 1	Informant 2	Informant 3	Document	
1	Action Plans	4	4.3	4	4	4.08
2	Procedures And Mechanisms	4.3	4.2	4.5	4.3	4.33
3	Organizational Structure	4	4.1	4	4.2	4.08
4	Controlling	4	4.2	4.3	4	4.13
5	Human Resources	4	4	4	4.1	4.03
6	Infrastructure	4	4	4	4	4.00

In table 2, it shows that the Operations and Academic Department as management, the Infolahta Department as a processor and provider of information data, and the Quality Assurance Agency have prepared and planned related input aspects with a value of 4.10. Thus, the component aspects in the STTAL smart campus program input need to be maintained and improved through good planning, including being flexible to changes in activity schedules and technological developments, providing student and lecturer information, providing library information media, processing data from student lecture activities, coordinating and involving all school stakeholders according to their competencies, in supporting the success of the smart campus program and disseminating and disseminating information openly related.

Process Aspect. In the process stage, it is used to analyze the process of implementing the STTAL smart campus program in achieving the formulated goals. The evaluation implementation is the same as the input process, including the components of the action plan, organizational structure, procedures and mechanisms, control and supervision, human resources, infrastructure, and smart campus program budgeting from the operations and academic departments and the infolahta department.

Table 3 – Evaluation of *Process* - STTAL's Smart Campus Program

No.	Component	Evaluation				Average
		Informant 1	Informant 2	Informant 3	Document	
1	Action Plans	4.2	4.2	4.2	4.3	4.23
2	Procedures And Mechanisms	4	4.3	4	4	4.08
3	Organizational Structure	4.3	4.2	4.5	4.3	4.33
4	Monitoring And Controlling	4	4.1	4	4.2	4.08
5	Human Resources	4	4.2	4.3	4	4.13
6	Infrastructure	4.5	4.1	4	4.1	4.18

The assessment results obtained from the process evaluation category in table 3 indicate that the Operations and Academic Department and the Infolahta Department have succeeded in carrying out the necessary steps in the process aspect which is reflected in the score covering the components of the action plan, organizational structure, procedures and mechanisms, control and supervision., human resources, infrastructure, and budgeting of smart campus programs. Only on the aspects of procedures and mechanisms the average score of 4.17 means that efforts must be made so that this component reaches the expected level. Thus, all aspects of the process components of the smart campus program can still be maintained through the anticipation of controlling the continuous process if there is a change in activity, clarity of schedule for each activity, coordination, and contribution of all school stakeholders following their competencies in supporting the success of the smart campus program as well as socializing and disseminating related information.

Product Aspect. Production evaluation is an activity to analyze the results of achieving the goals of the Smart campus program. In this study, the evaluation process includes the

components of achieving results, effectiveness, efficiency, convenience, and benefits from implementing the smart campus program. The results of the assessment obtained from the product evaluation category are documented as follows:

Table 4 – Evaluation of Product - STTAL's Smart Campus Program

No.	Component	Evaluation				Average
		Informant 1	Informant 2	Informant 3	Document	
1	Result Achievement	4	4.1	4	4.2	4.08
2	Effectiveness Achievement	4.3	4.2	4.5	4.3	4.33
3	Efficiency Achievement	4	4.1	4	4.2	4.08
4	Simplicity	4	4.3	4	4	4.08
5	Benefit Achievement	4.3	4.2	4.5	4.3	4.33

The results of the assessment obtained from the product evaluation category in table 4 show the components of achieving results, effectiveness, efficiency, convenience, and benefits from implementing the smart campus program. The score obtained is 4.18 which means that the product is good.

Based on the results of the STTAL Smart campus program evaluation carried out by researchers, it can be concluded that the implementation of the program is considered quite effective in supporting the process of lecture activities, as well as future organizational development. Where some shortcomings are still found, related to the problem of increasing the capacity of human resources for infrastructure in achieving smart campus goals, it needs to be improved through education and training. Besides that, it is still found that some implementations of this program are still not optimal in paying attention to the development of the surrounding environment, so it is necessary to improve the governance of the products produced so that they can become agents of change in increasing awareness of environmental impacts.

CONCLUSION

That the results and achievements of the implementation of the smart campus program that has been proclaimed by STTAL since 2015 until now have been quite effective, but it is still necessary to adjust the strategy towards the Research University that STTAL wants to achieve, with one of the adjustments and improvements through the program towards International Green campus.

CONFLICTS OF INTEREST

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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