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Assistance in Developing a Digital-Based Management System to Improve Documentation Quality and Motivation of Internship Student Adi Sumarmo VHS

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ABSTRACT

Background: The implementation of industrial internships at Adi Sumarmo VHS, based on a CIPP evaluation, has not utilized information technology to address issues in internship documentation, limited monitoring, and the orderliness of recording student internship activity.

Purpose of Study: This community service program is carried out to help the community develop a digital-based internship management system to improve the quality of industrial internship document recording. With this improvement, it is expected to motivate students to undertake industrial internships.

Methods: This service integrates a community participatory approach into the 4D development model, so that in the define, design, develop, and disseminate stages, there is one or two team actions in the form of assistance and socialization. This integration aims to build a positive perception of the Technology Acceptance Model (TAM) in the community.

Result: The program's participants gained community experience through active participation in mentoring activities to solve industrial internship problems by implementing information technology solutions. The outcome obtained was an industrial internship management information system with a feasibility score of 4.8/5 (96%) from the assessment of 3 IT experts. This service is also considered beneficial for teachers and students, with index scores of 90.75% and 80% based on solutions generated through an active community-participatory approach. In the end, service can empower the community to organize digital services that support more orderly documentation, thereby increasing students' motivation to undertake industrial internships as a form of documented achievement.

Keywords

CIPP; Community-Participatory; Information system; Internship; Vocational High School; TAM; 4D Model

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Introduction

Vocational High Schools (VHS) in Indonesia are educational institutions established to prepare prospective workers for employment in their respective fields (Abdillah & Puspitasari, 2025). One effort is implementing a mandatory internship program for all VHS students. This program can enhance readiness to enter the workforce and provides an opportunity to secure employment after graduation (Ratussalimah et al., 2022). The positive benefits of implementing the internship program are applied in VHS and other formal and non-formal educational institutions that aim to produce job-ready graduates.

The urgency of internships is felt as a supporting factor when applying for jobs in industries that require work experience. Additionally, several industries use internships or on-the-job training as a recruitment technique (Zhao & Liden, 2011; Rowe et al., 2017). Given the importance of internships as a graduation requirement, serious attention is needed to minimize problems that arise in the input, process, and output stages (Andri et al., 2024). These issues include student readiness, implementation monitoring (Solikin, 2023), competency evaluation (Febriani et al., 2022), and changes in student attitudes. These issues are classical problems that hinder the impact of internship programs on improving student competencies (Juri et al., 2021).

Adi Sumarmo VHS, which adopts the smart school concept, still uses printed journals as a medium to document internship program activities in its management system. Documentation in these journals includes student data, industry data from the location where the internship is conducted, internship activity data, and internship grades, all of which can be easily damaged or lost. Monitoring is carried out directly in the industry at low frequency, namely 2-3 times over 6 months, for the regular 12th-grade class in the 2023/2024 academic year. This situation leads to findings, based on information from the Vice Principal of Curriculum during pre-research, that some students are not consistent in completing activity reports in the internship journal, complicating the school's ability to measure the competencies gained after the internship. This is also caused by students' habit of not routinely recording daily internship activities, leading to less accurate records.

The problems in implementing the internship program in the current era of technological development can be minimized by utilizing information system technology as a management tool (Arina et al., 2023; Rissa et al., 2024). Information systems can alleviate the limitations of conventional monitoring practices in internships (Hasyim, 2023) and provide students with a more effective work experience through daily reporting routines (Noprisson, 2022). This is because the development of competencies in the internship program is not determined by the length of the internship period; rather, staying connected with mentors is much more critical for supporting students' competency development (Jaske & Linehen, 2020; Kakkar et al., 2024).

The electronic industry internship system has previously helped improve opportunities for indirect communication between students and mentors through the daily activity reporting feature (Sidik et al., 2025). Such systems have been widely used to support industrial internship programs in colleges and vocational schools (Yulianto & Firdaus, 2021; Ilmi et al., 2023; Willy et al., 2024). The results of implementing this system include ease of monitoring daily activities through an online logbook, documented assessment results from the industry, and export of internship activity grades. This condition shows that digital transformation not only complements the relationship between humans and technology but also enhances human skills (Li et al., 2024).

This digital transformation not only requires the ownership of digital assets within an institution but also demands an enhancement of human skills in technology (Li et al., 2024). This is because the success of technology diffusion depends on whether users can adopt technology without external assistance, as part of a digital transformation that spreads from more developed regions to less developed areas (Wang et al., 2023). Therefore, in this study, to increase the system's usability, adjustments are needed to align with the relevant institution's needs, making it easier to

unify mindsets and socialize its implementation.

The socialization conducted serves as a mentoring tool for management to build a more supportive community from the mentor's perspective (Alonzo et al., 2025). This action falls under a participatory approach that is useful for improving the quality of programs targeted in an activity. However, in practice, it requires contextual relevance, consistency in execution, and integration with community capacity-building (Nuryana et al., 2025). Active involvement of end-users in system development is significant for understanding its function in their routine work (Hwang & Thron, 1999; Martikainen et al., 2020). The effort was carried out through field observations and Focus Group Discussions (FGD) with teacher practitioners to ensure that the development results aligned with users' characteristics and the needs of Adi Sumarmo VHS.

Students participating in internships from VHS fall into the Generation Z category, who are more motivated to perform actions when there are appreciation features similar to those in the games they usually play (Rothman, 2016; Natalia et al., 2024). The appreciation of the vocational training experience can manifest in a skills portfolio that includes competency achievements. The presence of a portfolio in industrial internships positively affects self-enthusiasm factors (Michos et al., 2022). The results of these activities' portfolios can enhance students' career maturity and serve as supporting documents when applying for jobs (Aqli et al., 2019). Digital portfolios, similar to social media, will become a consideration for Human Resource Management (HRM) in various workplaces in the coming years when searching for talent or workers (Osburg et al., 2020; Hosain, 2023).

Therefore, it is expected that this community service program will have a systemic impact on PKL management, accompanied by increased motivation and discipline in reporting daily student activities, the realization of orderly PKL activity documentation, and the strengthening of a technology-based PKL management culture to support a smart school. Thus, the development assistance in this community service not only focuses on producing outputs but can also address problems through integrated steps involving mentoring and the development of a digital-based PKL management system at Adi Sumarmo VHS.

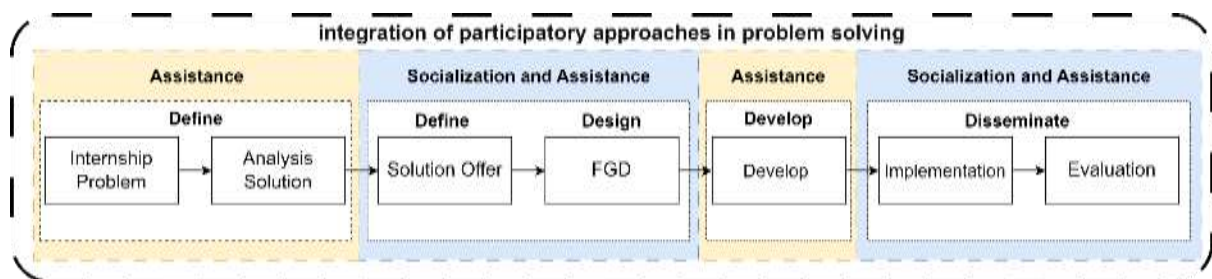


Figure 1. Framework For Problem-Solving Solution

Method

The development of an electronic industrial internship system for VHS in this study includes research and development (R&D) actions with community-based using the 4D method (Thiagarajan et al., 1974). The 4D stages involve defining, designing, developing, and disseminating, which are presented as a flowchart in Figure 2. The results of this development will be used by students in the automotive light vehicle engineering program at Adi Sumarmo VHS, Central Java, who will conduct fieldwork in the 2025/2026 academic year.

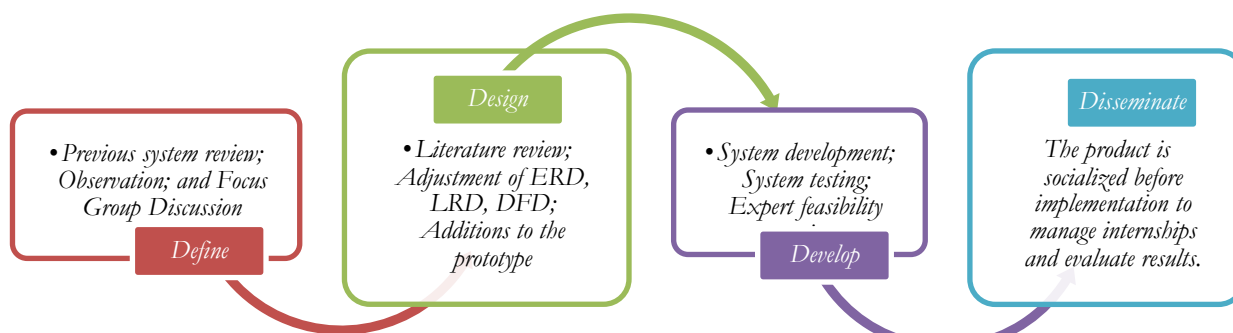


Figure 2. 4D Process Stage (Winaryati et al., 2021)

Define

The development of the electronic industrial internship systems for Adi Sumarmo VHS is based on a needs analysis conducted through interviews with the Deputy Headmaster of Curriculum, field observations, and FGD. At this stage, 12 teachers, comprising the school management team, productive teachers, the school IT team, and student representatives, are very important for providing further information on the challenges faced in implementing industrial internships. The management team presents the industrial internship management system. Productive teachers explain the problems encountered during industrial internship supervision related to student discipline and the limitations of direct field monitoring. The IT team presents the smart school system built at Adi Sumarmo VHS. Students provide feedback on the service team's proposed solutions. The information obtained at this stage will serve as the basis for developing a context-appropriate internship management information system, a manifestation of the service team's participatory approach to partner schools. In addition to solutions that have been tested and implemented at the higher education level, offering several prominent features, including 1) an industrial internship information database; 2) an industry proposal feature; 3) an internship guidance feature; 4) an industry assessment feature; 5) an internship supervisor assessment feature (Sidik et al., 2025). At this stage, an evaluation of the previous industrial internship period is also conducted using the Context, Input, Process, Product (CIPP) evaluation instrument (Juri et al., 2021) to enhance the accuracy of decision-making actions in this study.

Table 1. CIPP Indicator Evaluation

Aspect	Indicator
Context	Internship objectives, Stakeholder support
Input	Student readiness, Availability of facilities, Teacher readiness, Industry readiness, Time allocation
Process	Student participation, Guidance, Monitoring, Use of IT, Regularity
Product	Competency improvement, Assessment, Work readiness, Follow-up

Design

The results of the definition support the design stage in adjusting the previous system to meet VHS's needs. The needs of VHS Adi Sumarmo include enhancing student motivation to undertake internships, addressing discipline issues in completing internship logbooks, assisting with the sustainable implementation of internships, and facilitating documentation for internship program work groups. This data is supported by the literature on these needs.

The need to enhance motivation can be addressed through features that recognize students' internship activities, such as playing a game (Natalia et al., 2024). Ria et al. (2025) found that teachers' awards have a significant impact on the learning motivation of vocational school

students. Research by Ratnaya et al. (2024) also indicates that punishment and reward have a substantial impact on the learning motivation of VHS students. The punishment feature in this system for VHS will be manifested by presenting attendance statistics on the internship portfolio feature (as a realization of the reward feature), thereby showing the quality of each student in carrying out internship activities. Meanwhile, to address disorganized logbook entries, a feature can be implemented to enhance monitoring and mentor support during internships (Melati, 2024). The system design is translated into an Entity Relationship Diagram (ERD), a Logic Relation Diagram (LRD), and a Data Flow Diagram (DFD) using the draw.io application, and the latest features are added to the prototype developed in Figma.

Develop

The design results were developed into an electronic industrial internship system product version for VHS to improve the quality of program management for internships at Adi Sumarmo VHS. At this stage, the product was tested together with 4 field assistant students, bug fixes by the IT Developer team, feasibility testing by 3 IT experts, improvements based on recommendations from IT experts by the IT Developer team, and performance quality testing using website testers, GTmetrix, and Pingdom. The decision-making for the system feasibility test used previous research instruments on software quality testing, ISO 25010:2011, conducted online via Google Forms with a Likert scale of 1-5, and the results were interpreted as percentages (Sugiyono, 2019).

Disseminate

At this stage, the results of the socialization, mentoring, and monitoring interventions carried out during the community service will be known. The outcome of this stage is the implementation of an industrial internship management system to assist the internship process for students of the Light Vehicle Engineering excellence class, which will take place from July to September 2025. The use of this system will provide experiences aligned with the objectives of the community service, namely improving the quality of internship management, documentation, and student motivation, managed by the industrial internship management team of the Adi Sumarmo VHS excellence class.

Result

The service implementation with a participatory approach is divided into two: mentoring and socialization, from February to October 2025. Mentoring actions are carried out by the service team, including defining problems, mentoring in system development, mentoring in system use, and mentoring partners to evaluate implemented programs. In the process, the service team conducts socialization twice: once when offering ideas/solutions on May 6, 2025, and again when training teachers and students on the successfully developed system on July 24, 2025. The applied participatory approach is useful for improving the quality of industrial internship management and documentation, as well as for building motivation among students in the gifted class to carry out the industrial internship during the August-September 2025 period. Details of the service team's involvement in the process are internalized in the following stages of development mentoring:

Define

At this stage, the community service team helps to outline the management system for the industrial internship organized by the Adi Sumarmo VHS internship team. Based on preliminary research results, it was found that internship management is still carried out conventionally, leading

to classic problems such as a lack of motivation and disorder in completing the journal book, which makes it difficult to measure competency achievements after the internship. Assistance in defining the problems was also conducted by organizing a Focus Group Discussion (FGD) with 12 teachers and representatives of top students in the light vehicle engineering class who will undertake internships in the August-September 2025 period.

The results of the Focus Group Discussion (FGD) revealed the perceptions of teachers at Adi Sumarmo VHS regarding the implementation of internships using the Context, Input, Process, Product (CIPP) method (Juri et al., 2021; Furtasan Ali Yusuf & Basrowi, 2023). In the Input aspect, it was found that the school does not yet have a specific information system to support the management of the internship program, resulting in a score of 3.18. In the Process aspect, it was found that the component utilizing Informatics technology infrastructure is still categorized as 'poor' with a score of 2.94; thus, the management of documentation for internship applications, internship books, internship reports, and partner industry databases needs improvement. The weaknesses in the Input and Process aspects of the internship implementation, shown in Figure 3, may explain why the Product aspect received the lowest score.

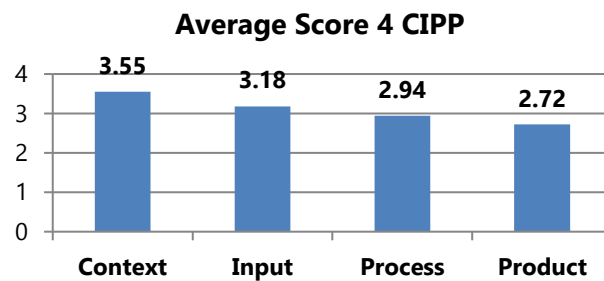


Figure 3. CIPP Evaluation Results

Assistance in defining encountered problems is not limited to merely presenting issues; it involves a session of exchanging ideas with the service team regarding proposed solutions for the industrial internship management information system to improve the input and processing aspect scores in the future.



Figure 4. Focus Group Discussion

Design

The implementation of industrial internships for the superior class is intended as a pilot program that is expected to motivate other students. Therefore, the internship placement is in selected, high-quality industries that have established cooperation with the school. However, during the internship, differences emerged between the industry-requested internship schedule and the school's agenda, allowing the start times to vary within a single class. The disclosure of this condition was obtained during the socialization of solution offers with FGD participants. Other needs expressed by FGD participants are outlined in Table 2.



Figure 5. Solution Suggestion Socialization

Table 2: List of Requirements for the Industrial Internship Companion System

Internship stage	Activities as a necessity
preparation	Mapping of students and partner industries
	Differences in internship implementation time
	Submission of internship introduction letter from the school
	Assignment of supervising teachers by the internship coordinator
process	Filling out and monitoring internship activity
	Permission or dispensation for absence from internship to the school
	WhatsApp contact of internship participants
assessment	Provision of internship assessment format from the school for the industry
	Provision of format and storage of student industry internship reports
	Conversion of grades from the industry according to the internship report card format
	Provision of certificates/portfolios of internship experience for students

The service team at this stage translates the partner school's needs into the system flow that will be developed. During development, the school management team communicates to provide explanations and internship documents, building a more contextually designed system to better meet needs.

This condition necessitates internships conducted over varying periods, thus requiring a system capable of monitoring internships within a single class with different start and end dates. The arrangement of the internship period is provided on the main admin page, which will affect the data on the student account registration page, the initial page for internship coordinators, and the initial page for internship supervising teachers upon login. The main admin sets the internship period before this system is used, requiring the school to plot the scheduling of internship departures for each industrial group if internships are conducted over varying periods.

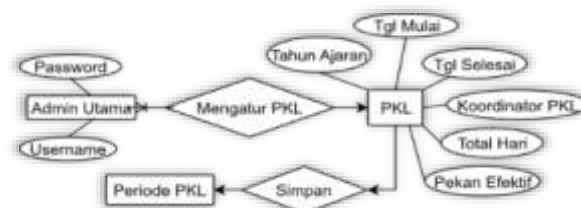


Figure 6. ERD Setting of Internships Period

The internship period separates the database between student accounts and internship supervisor accounts, allowing for variations in the internship implementation periods. During implementation, features were introduced to enhance Generation Z students' motivation during the internship period, helping them appreciate the achievement of internship competencies (Rothman, 2016). This appreciation feature is the portfolio print feature, which can be downloaded after students and supervisors complete a series of internship programs within a single period.

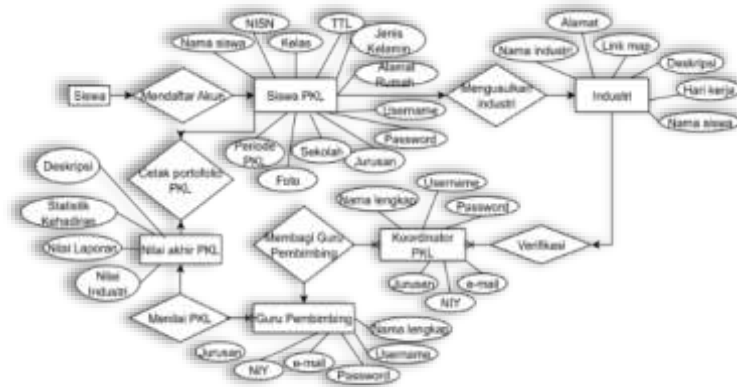


Figure 7. ERD of Students and Teachers

During the internship, an online logbook feature was provided as a remote monitoring tool to track internship activities and address disorderly logbook entries. This feature includes a permission form for students who cannot attend the internship, integrating the supervising teacher's role to verify the submitted permission through their dashboard. The results of the logbook entries will appear as statistical data on internship attendance, as shown in Figure 8, which will be considered for the final internship grade. They will also appear in the internship portfolio as information on the quality of the internship for each student.

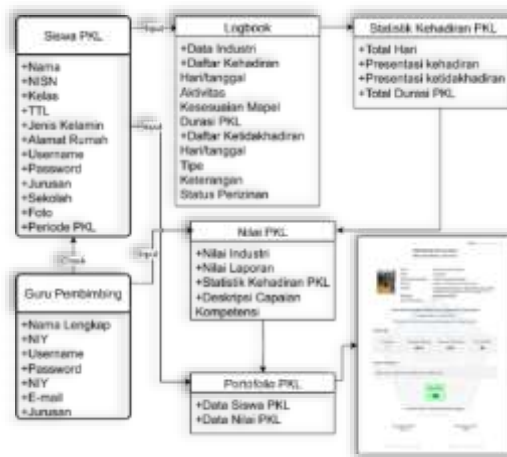


Figure 8. LRD System

The documentation of the internship files during one period from start to finish in the electronic industrial internship system version for VHS is implemented with an intuitive system operation beginning with account creation, internship location requests, daily internship activity reporting, internship evaluations by the industry, internship evaluations by supervising teachers, and ending with the printing of internship portfolios. The documents uploaded at each stage will be stored in the system's database, allowing students, teachers, and the main admin to download them at any time. Below is a DFD of the system operations for students and teachers, from login to obtaining the internship portfolio.

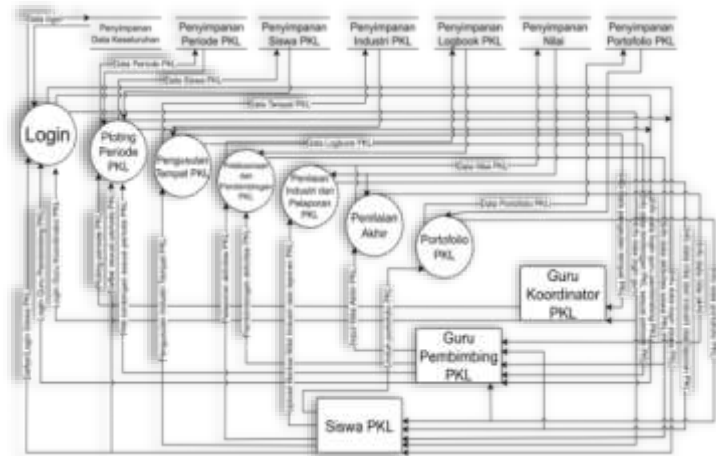


Figure 9. DFD System

From the DFD image, the latest features in the development of the electronic industrial internship system version for VHS include the plotting of internship periods, internship reporting, and internship portfolios, which are responses to the focus group discussion with the teachers of Adi Sumarmo VHS. The prototype design for these features is visualized in Figma.



Figure 10. Prototype Design of the Latest Features

Develop

The operation of the electronic industrial internship system begins with the main admin (internship coordinator) preparing the internship period for the specialized industry mentoring class. The main admin enters internship period data for the scheduled implementation period via their dashboard. The input results, as shown in Figure 11, will create a separation in the database between internship periods.



Figure 11. Plotting of the Internship Period

The results of the internships plotting period serve as input data when students register an account, allowing the separation of the internship mentoring database on the supervising teacher's dashboard. Through this system, supervising teachers can mentor internship students with varying start times or internship durations. This management strategy would be cumbersome to implement conventionally without a supporting system.

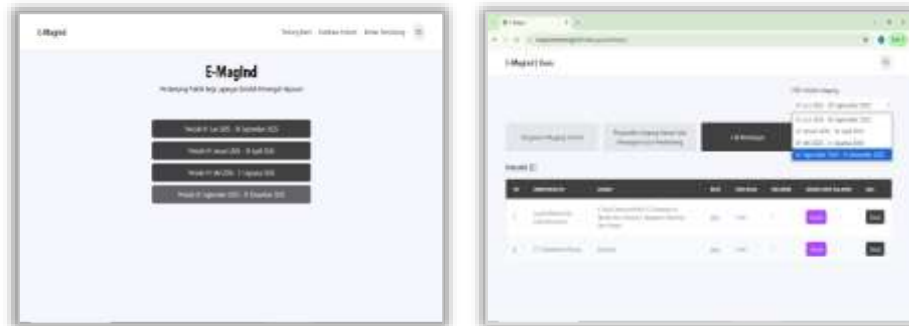


Figure 12. Guidance During the Internship Period Varies

During the internship implementation, supervising teachers can continuously monitor internship activities through the online guidance feature, eliminating the need to review the logbook during direct field monitoring sessions. Even with this system, printed logbooks can be replaced to reduce production costs and improve the order of reporting internship activities. Properly filling in internship activities can help overcome the measurement bias of competencies gained during the internship, thereby providing a more accurate assessment at the end of the internship activities.

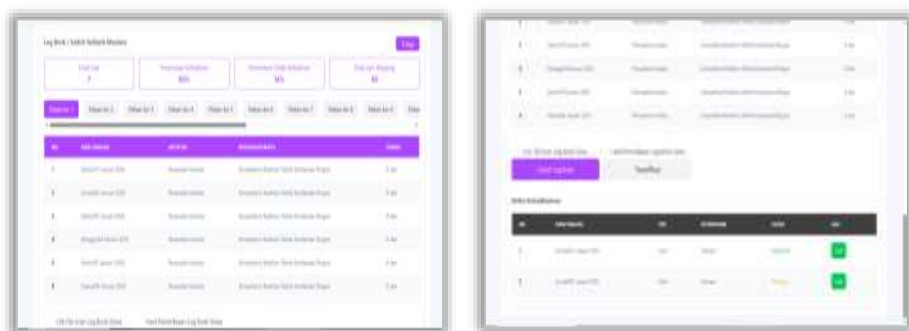


Figure 13. Online Logbook of Internship Activities

In the guidance feature (Figure 13), students will be aware of the direct impact of poor attendance statistics on their internship portfolio if they frequently miss classes as a form of punishment. The aim is for students to understand the importance of attendance discipline as a form of track record of work experience that can have negative consequences for its continuity. The attendance statistics data also appear on the supervising teacher's page as a concern for student activity and a basis for follow-up actions needed to maintain student motivation in carrying out the internship in an orderly manner through their involvement as a supervisor (Kakkar et al., 2024). This is due to the slow detection of student indiscipline during the internship, which has negative consequences for both vocational schools and partner industries, even leading to contract termination/blocklisting cases.

At the final stage of the internship, students receive grades from the industry, collect reports, and obtain final grades from their supervising teachers. The final grade assigned by the supervising teacher takes into account the grade data from the industry, the quality of the internship report, and attendance statistics during the internship. The teacher analyses the report's

content in the internship logbook to describe the competency achievements obtained by the students based on the internship grading indicators.

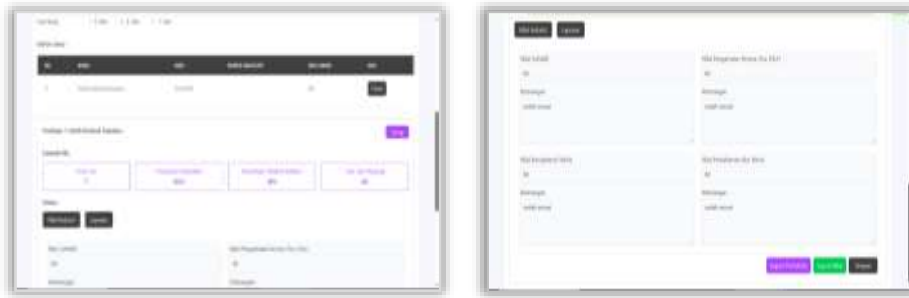


Figure 14. Final Assessment of Internship

Students who have obtained their final grades for their internship can download the printable output of the internship portfolio, which will be certified by the relevant authority as supporting documentation for job applications. The internship portfolio will display student identification data, industry-specific data from the internship location, details on the internship period, statistical data, competency achievement descriptions, final grades, and the date the internship portfolio was downloaded.



Figure 15. Internship Portfolio

Before entering the performance and feasibility testing phase, an operational trial was conducted using students' smartphones and laptops (Figure 16). The trial involved four students who ran through all system features, from registration to exporting the internship portfolio. The results of this action still experienced some minor bugs, which were then communicated to the IT developers for further improvements.



Figure 16. System Testing and Error/Bug Search

The system was also subjected to performance testing and website speed evaluation using automated software tools, including GTmetrix and Pingdom, to detect and mitigate user discomfort caused by the system's sluggish performance (Yason et al., 2022). Testing was conducted using GTmetrix on the nearest server in Sydney, Australia, from Indonesia, using the dominant 4G LTE network, and in the Chrome browser, which is available on all Android

smartphones and laptops. The average performance score obtained from both results is 75, which is still in the grade B range. This indicates that the system does not exhibit performance that could disrupt user comfort due to lag or excessive weight.

In this stage, the vice principal in charge of curriculum tests the system to assess its smoothness and ensure it remains in accordance with needs. Furthermore, for a more in-depth review of system feasibility, IT experts are needed. The results of the system feasibility test, conducted by three IT experts, yielded an average score of 4.8/5 (96%), indicating that the system version for vocational schools is categorized as "very feasible" for implementation as a companion to managing the internship program.

Table 3: Average Results of the System Feasibility Test

Aspect	Score	N Mean
Function suitability	5.00	4.80
Performance efficiency	4.67	
Compatibility	4.83	
Utility	4.67	
Reliability	4.75	
Security	4.83	
Maintenance	4.83	
Portability	4.83	

Disseminate

The system, successfully developed by the community service team together with the partner school, was then socialized to the teachers and students who will use the system for the first time during the internship period of August-September 2025 on July 24, 2025. The socialization was delivered by the community service team to build operational information system skills among the teachers at Adi Sumarmo VHS.



Figure 17. Socialization of System Operation

Student socialization was carried out by the industrial internship management team, namely the school industrial internship coordinator, accompanied by the vice principal of student affairs, the counseling teacher, and students from the service team. Previously, the internship coordinator had arranged the placement plotting for the superior class students at partner industries, so that students not only practiced operating the system but also started the preparation stage.



Figure 17. Assistance Activities for Implementation System

During the internship, the industrial internship management information system was managed by the partner school, with online monitoring and guidance from the community service team. This condition requires effective communication to maintain a sense of community service team presence and provide moral support to the partner school using the internship management information system for the first time. An interactive approach maintains involvement between the community service team and the partner school through the end of the internship, scheduled for August-September 2025.

This involvement can meet the documentation management needs of internship implementation across various partner industries in a more structured, digital manner. This service activity provides a positive impact on the management of industrial internship implementation with different time periods, as shown in Figure 18.

ID	TAHUN AJARAN	TANGGAL	AKTIF
1	2025/2026	01/10/2025 - 31/01/2026	Aktif
2	2025/2026	28/07/2025 - 31/12/2025	Aktif
3	2025/2026	01/08/2025 - 30/09/2025	Aktif
4	2025/2026	11/08/2025 - 30/09/2025	Aktif

Figure 18. Implementation of Ongoing Internship Period Management

Improving the quality of industrial internship management, accompanied by orderly recording of daily activities applied by 27 outstanding class students participating in the internship. Recording industrial internship activities is not limited to documentation in digital form; it also encourages students to export the activity logbook for validation by industry mentors, as shown in Figure 18. This culture indirectly affects the internalization of integrity development among students during the internship.



Figure 19. Results of Daily Activity Recording of Industrial Internship

Another impact of using this industrial internship management system is evident in the average attendance percentage for students in the excellent class, which was 95% for the August-September 2025 period. The results received by students from this internship activity also include an internship portfolio consisting of two pages: the first page contains the internship assessment achievements, and the second page and onward contain a recap of the internship activity, as shown in Figure 20.

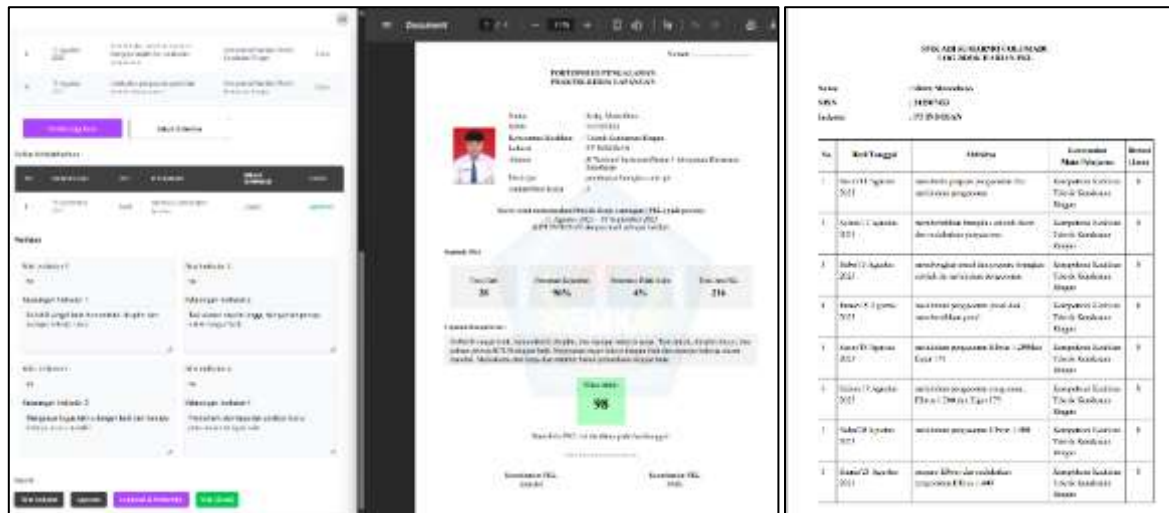


Figure 20. Industry Internship Output

The final evaluation of the internship activities was conducted by distributing questionnaires to students and teachers on their perceptions of the benefits of using the internship management system, using a Likert scale from 1 to 4. The final evaluation assessed user perceptions, including 1) ease of operation; 2) quality of socialization provided by the community service team; 3) suitability with needs; 4) monitoring by the supervising teacher; 5) support for internship follow-up; 6) character formation of students; 7) system reliability; 8) implementation satisfaction. The results showed that students' average perception index score was 80%, placing them in the 'agree' category, while teachers' average perception index score was 90.75%, placing them in the 'strongly agree' category. Qualitative feedback was also collected from students, including positive comments on the ease of supporting internship activities, complaints about link errors, and suggestions for development to add notification features.

In the end, the results of implementing the service with an integrative approach addressed the partner school's needs as expressed in the define stage. Based on observations during the mentoring, the implementation of the industrial internship has shown positive changes, as presented in Table 4.

Table 4: Impact of Changes

Activities as a necessity	Observation Report	Implication
Mapping of students and partner industries	The implementation of internships with varying start dates can be well managed; students can download the introduction letter documents through the system, and internship coordinators can assign internship supervisors via the system.	Improving documentation of preparation
Differences in internship implementation time		
Submission of an internship introduction letter from the school		
Assignment of supervising teachers by the internship coordinator		

Activities as a necessity	Observation Report	Implication
Filling out and monitoring internship activity	The supervising teacher can monitor internship activity through the system without conducting direct field monitoring and can monitor attendance statistics for each student's industrial internship.	Improving attendance documentation
Permission or dispensation for absence from the internship at the school	Students have used the leave/dispensation feature when absent from the internship, which requires verification from the supervising teacher.	
WhatsApp contact of internship participants		
Provision of an internship assessment format from the school for the industry	The assessment format for industry and internship reports is available in the system. Teachers can use the grade input feature based on the results of industry assessments and student-entered internship reports in the system, so that the measurement of competence achievement after the internship is more objective. Students who have completed the required documents for the industry internship assessment can download their internship portfolio as proof of internship experience.	Improving evaluation documentation and student motivation
Provision of format and storage of student industry internship reports		
Conversion of grades from the industry according to the internship report card format		
Provision of certificates/portfolios of internship experience for students		

Discussion

The implementation of community service demonstrates a participatory approach through structured mentoring and socialization activities, thereby driving cultural change and quality improvements in the management of industrial internships during the August-September 2025 period. In the process, it has applied the research mentoring framework of Alonzo et al. (2025), which involves collaborating with universities, building effective relationships with teachers, providing guidance and support, using progressive thinking, sharing resources and experiences, and developing knowledge in mentoring distributed throughout community service. Through this activity, partners are empowered to take ownership of solving their own problems, so that the solutions offered integrate partner findings and the community service team's experience. Active partner involvement is evidence of the foundation of community service, with the formation of a supportive community (Alonzo et al., 2025).

Partner involvement began at the pre-service stage by revealing common problems encountered during the implementation of the industrial internship for the 2023/2024 academic year. The information provided at this stage indicates that the service program was well received by the partner school, providing a basis for developing solutions based on the service team's experience. The solutions offered by the service team are not final decisions, but rather serve as a stimulus for 12 teachers and student representatives participating in the FGD to express the most important needs to qualitatively address the problems of the industrial internship program. Quantitative data were also collected at this stage through the CIPP evaluation questionnaire (Furtasan Ali Yusuf & Basrowi, 2023) to provide a clearer picture of the implementation of the industrial internship for the 2023/2024 academic year.

The results show that the implementation of industrial internships at Adi Sumarmo VHS (context) has been guided by the goals to be achieved and by government support, in accordance with applicable regulations governing the conduct of internships. A strong foundation for

implementing this program (Input) is aligned with the school's ecosystem readiness level and the availability of industry partners to support its smooth operation. However, it was found that the information system facilities used to support this program are still not available at Adi Sumarmo VHS. This condition is in line with the quality of the industrial internship implementation process (process), where student participation, internship monitoring, and IT infrastructure are still not optimal. As a result, the improvement in student competence and performance assessment remains insignificant, requiring special attention as a follow-up to enhance quality.

A portrait of the internship implementation at Adi Sumarmo VHS, based on the data obtained, shows the need to strengthen the input aspect (score of 3.18) and the process aspect (score of 2.94) to support the product aspect (score of 2.72). Solutions based on these findings align with the service team's proposal by providing guidance and socializing a digital management system. Therefore, the solution offered by the service team was well received by the partner community, as shown by the enthusiasm of the FGD participants in sharing their experiences and needs for a system that can effectively support the implementation of the top-class industry internship for the August – September 2025 period. In this way, this community service program not only successfully shapes a development project brief that aligns with the context of end-user needs but also has a positive impact on quality systems and the organization in fostering enthusiasm and a sense of care to realize improvements in the quality of vocational education through industrial internship activities (Hwang & Thorn, 1999).

The list of needs for the development of a digital-based management system, shown in Table 2, represents the industrial internship management requirements from the preparation, implementation, and assessment stages. Management that can be realized using a digital-based system is intended to support improved documentation quality at each stage, and motivate students through features such as attendance statistics and industrial internship achievement portfolios. It is hoped that this can address the industrial internship problems highlighted by Andri et al. (2024) and Solikin (2023), who stated that classic problems usually occur in the input, process, and output stages, thereby answering the research of Juri et al. (2021) to optimize competence achievement after industrial internships. Indirectly, the service team has educated about the process of unraveling internal problems, as a basis for developing solution-oriented products based on a progressive mindset accepted by the community itself.

The steps implemented in this service support the Technology Acceptance Model (TAM) theory by addressing ease of use, usefulness, attitude toward use, intention to use, and system usage as a solution to overcome problems (Natasia et al., 2021). Qualitatively, the system produced from this service has addressed the community's need to strengthen digital-based industrial internship management, as shown in Table 3. Based on observations of the system implementation during the internship period in August-September 2025, the student attendance rate was 95%, and daily documentation of internship activities was maintained. These findings show that quantitative data, including a system feasibility score of 96% and usefulness perception scores of 80% from the students' perspective and 90.75% from the teachers' perspective, indicate a positive impact on the partner community of Adi Sumarmo VHS.

From the perspective of Generation Z students, who need appreciation when performing an action, the portfolio feature fulfills this need by recognizing post-industrial internship competency achievement (Rothman, 2016). In addition, building a portfolio can strengthen students' track record when they later look for a job (Michos et al., 2022), demonstrating that they have experienced the real-world work environment. This has a slightly greater impact on increasing students' motivation to complete industrial internships without any problems, thanks to the successfully developed system. However, there is still an opportunity to further improve the technical aspects based on user feedback on system feature development.

The independent skills of partner schools in operating the currently developed system still rely on empowering young teachers with strong digital skills. Based on field observations, the teachers who actively participated in operating the digital-based internship management system for the flagship class from August to September 2025 were from Generation Z (industrial internship staff) and Generation X (homeroom teachers, industrial internship coordinators, and vice principals of curriculum). This finding aligns with other research indicating that limitations in digital transformation are closely related to digital pedagogical gaps in the implementation of the TPACK concept in developing countries (Rafly et al., 2025). In addition, support from the management team is very important for establishing regulations, policies, and providing IT infrastructure support, such as annual domain and hosting costs. This condition underlies the continued need to strengthen the capacity of partner communities to independently and sustainably manage digital-based industrial internships. The goal is to achieve true success in digital transformation, which is being able to operate the system independently without any further assistance from external parties (Wang et al., 2023).

Conclusion

Service using a participatory approach to generate a solution has a positive impact on the Technology Acceptance Model (TAM). By actively involving the community as parties with problems and in need of solutions, the service team can increase its awareness of the importance of the solutions it offers. Assistance in developing an industry internship management system based on digital platforms through a structured and integrative process between the participatory approach and the 4D development model. The result is a system that is considered feasible for supporting the implementation of the industrial internship program. The benefits of this system are also felt by students and teachers during the industrial internship. The resulting solution is said to be on target because it is built on community findings and on the service team's experience in digital transformation in the field of vocational education.

The implementation of the digital-based management system has addressed the need for improved documentation of the preparations required before industrial internships, the progress of student attendance during the internship, and the assessment of competency achievements after the industrial internship. Students also showed increased motivation to complete the internship, as evidenced by attendance records and the presence of an industrial internship portfolio feature. The success of implementing this solution in this community service requires strengthening the community's competency capacity through mentoring and gradual socialization. It is hoped that the experience and benefits of this community service program are not only felt by teachers of a certain generation with digital system operation skills, but also have implications for digital transformation across other fields, even without external assistance. Therefore, it is important for the management team to provide support by strengthening human resource capacity, policies and regulations, and sustainable IT infrastructure.

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Conflicts of Interest

The authors declare no conflict of interest.

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