

Research Article

Utilization of Agile and Scrum in Advertising Media Projects With time Constraints and Locations Close to Cultural Heritage

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ABSTRACT

The project by PT Adhi Kartika Jaya, JJ Promotion, is a high-value investment project on Jalan Kertajaya Surabaya, near the Cultural Heritage Building Viaduc Kertajaya. The project aims to install outdoor billboards with a strategic location and work hours between 00:00 WIB and 06:00 WIB. To achieve expected results, construction management over existing resource assets is crucial. The project must focus on preventing damage to cultural heritage buildings, implementing K3 (Occupational Health and Safety) aspects, and completing on time. Thorough documentation is necessary to identify vulnerable points and ensure safety equipment is used. The project is divided into two main stages: backlog/stage in the workshop and backlog/stage at the project site. After completion, the project area is cleaned and inspected to ensure safety. The project serves as a lesson for exploring broader project management knowledge, such as the Agile Method with Scrum and Kanban tools.

Keywords: Project Management; Time Speed; Construction; Agile Methods; Advertising.

1. INTRODUCTION

The construction of the Neon Box Project is actually a project that is ordinary or commonly seen, both in terms of its construction model and its planned view. However, considering the objectives and limitations in terms of project location, available time, as well as the limitations of the involved work team and taking into account safety aspects and other factors, the selection of the appropriate implementation method is very much needed. This is important because each project has different project characteristics, work teams, and project environments that affect the progress of a project. In addition, the combination of several methods (hybrid methods) is also often used to achieve better results (Jojok & Syamsul, 2024). The method of planning and selecting professional project workers and good methods, as well as adapting to the situation and conditions in the field and implementing occupational safety, are the main programs expected to create safe working conditions and minimize workplace accidents (AI, 2021).

This project is an Investment Project from PT Adhi Kartika Jaya, also known as JJ Promotion. The location of this project is on Jalan Kertajaya Surabaya, precisely near the Viaduc Kertajaya Cultural Heritage Building, which is protected by the Surabaya City Government. This project is a high-value project due to its strategic location for the placement of outdoor billboards, as the traffic flow on that road is quite dense every day because it is located in the city center. The location of this billboard is also highly contested by many advertising companies as a prestigious and prestigious outdoor promotion site. However, on the other hand, a technical issue arises, where the location of this construction is also close to two railway lines that are quite busy due to its proximity to the Gubeng Kertajaya Station, both during working hours and at night. On the other hand, during the implementation and execution of this project, many aspects are also considered, especially the safety of traffic drivers and the busy schedule of the train line during working hours and at night. In addition, the safety of workers, as well as the attention from advertising business owners based on certain considerations they believe in, led to the decision to carry out this project at night on weekdays but during non-active hours. The working hours for this project are between 00:00 WIB and 06:00 WIB. Another consideration that is also a concern in this project is that in the execution of the work, it has been decided to use conventional working methods or without using heavy machinery as work aids, due to the prohibition of road closures for extended periods. From the above issues, the execution of this project cannot be carried out using the conventional waterfall project management method that follows the linear sequence of project phases. This means that another method must be used to solve the above problems. In a construction project, a series of large-scale activities are

usually found and marked, where there are parties involved in the project work, each with their own agreed-upon tasks, time limits, and costs. To manage and coordinate the entire series of complex project activities within a very limited timeframe, it is necessary to implement construction management over the existing resource assets with mapping focused on planning, execution, and project control. This is important and must be done to achieve the expected results. Management of limited resources such as labor, tools, work methods, duration, and materials, along with safety aspects in this project, becomes the top priority due to the high level of complexity involved in this project. (Alfian & Andrian, 2024)

To complete this project, the steps that must be taken are to identify the work details in detail, then classify the predecessor tasks and successor tasks with the aim of facilitating mobilization and simulation, as well as making it easier to create a work sequence simulation. The next step is to form small teams that will be involved in the execution of the work, starting from the K3 Team, Electrical Team, Supervisory Team, Construction Team, and Finishing Team, each with their respective functions and tasks. Each team is given a clear task description and work plan, including work hours based on the predetermined duration, starting from when to begin work and when to finish work. In order to facilitate the execution of the work, all involved teams create a simple simulation of the tasks being performed within the specified time duration. In carrying out this project, it is important for all teams involved to be able to work adaptively, collaboratively, and to have the ability to quickly identify changes that occur, as well as to anticipate and provide solutions for obstacles that may arise to ensure that each assigned task can proceed according to the initial plan in order to achieve the set goals. (Nur, 2024)

In addition to the above, in the implementation of this project, another equally important aspect is the control of OHS management throughout the duration of the project. As we all know, construction and manufacturing are sectors with the highest accident rates, followed by the transportation sector. Coincidentally, these two sectors are also part of the important factors that will determine the success of this project. Any accidents that occur in this project will result in significant losses and serious project failures. Therefore, in the implementation of this project, it is also necessary to identify the potential for work accidents both from the internal work team and from external parties. In addition, the preparation of safety equipment and safety simulation tools also needs to be given serious attention to support the smoothness of work with an emphasis on zero accidents (Bina & Ekawati, 2020).

1.1 Problem Diagnosis

Based on the what we have presented in the background above, we can collectively understand that this project can be described as a simple project but contains various complex risk issues, risk factors, and problems that will be faced and must be resolved. The issues that arise from the implementation of this project can be identified in several problems and become the main points to be resolved as much as possible. As for some of the issues that arise, they can be outlined as follows:

- a) How can we address the damage to the Cultural Heritage caused by the implementation of this construction work?.
- b) How is the K3 Method implemented to ensure the Safety of Workers and Traffic Drivers during the work process runs smoothly to achieve zero accidents?.
- c) How can we determine a relevant and feasible project implementation method so that the project's success can be achieved despite all its limitations?.

2. Project Work Implementation Method

2.1 Problem Solving Methods for Handling Damage to Cultural Heritage

As an initial step in the implementation of this project, the most important thing is to map all the problems that may arise as a result of the implementation of this project, especially from the physical impact of cultural heritage buildings (figure 1). Problem solving as mentioned above needs to be the main concern for all teams involved in this work, as well as a guideline in carrying out the work, therefore it is necessary to make a kind of strategic plan that aims to anticipate or minimize the impact of vulnerabilities that may arise.



Figure 1. Kertajaya Viaduct project location from the direction of Jalan Sulawesi, Surabaya

In accordance with Surabaya City Regional Regulation Number 5 of 2005 Article 8 which states, "Every person who owns, controls, and/or utilizes cultural heritage buildings and/or environments is obliged to maintain their preservation and prevent damage to cultural heritage buildings and/or environments" (Surabaya, 2005) and reinforced by Surabaya Mayor Regulation Number 42 of 2017 (Muji & Andriyansah, 2024), the implementation of this project must be carried out meticulously, adaptively, and documentarily. After understanding the above matters, the steps that must be taken are to implement several work plans as follows:

1. Conducting thorough documentation of all physical aspects of the cultural heritage building before the implementation begins. This is done to obtain factual data on the condition and state of the building before the project implementation takes place.
2. Conduct direct observations of the building's condition while also performing a comprehensive mapping and determining physical identification points by creating a checklist with a damage scale: vulnerable, highly vulnerable, and not vulnerable. This activity is intended so that during its implementation, the working team knows where the vulnerable points are that need special treatment to avoid causing new damage to the cultural heritage building.
3. Creating and preparing auxiliary work devices/tools that will be used in the implementation of work activities if the checklist results intersect with vulnerable points of cultural heritage building damage, and determining alternatives and solutions for the technical implementation methods, this aims to ensure that the work supports or work areas used as much as possible avoid the previously identified vulnerable points.
4. Preparing a special lighting plan at critical points of the building, this is intended so that when the work team is at those points, they can work more carefully and be more aware of all possible risks and hazards that may arise.
5. All identified matters must be communicated in a meeting with all involved work teams and must be explained in detail regarding all risks, impacts, and consequences that arise, so that everything planned in the work is in accordance with the checklist that has been adjusted to the identified points according to the classification of vulnerability points.
6. Preparing a site security plan and setting up special warning signs, preparing special auxiliary work tools for safety against fire hazards, falling materials, and so on, so that all project activities can ensure the safety of workers or the safety of drivers passing through the project site, in addition to avoiding damage to cultural heritage buildings due to project work activities. This aims to ensure that the work can proceed as planned and that all risks can be controlled throughout the duration of the project.
7. Conduct a thorough re-documentation of all physical aspects of the cultural heritage building after the completion of the project work. This is done so that we obtain factual data on the condition and state of the building after the completion of the project, to determine if there are any damages or physical changes to the cultural heritage building. This way, it becomes a well-documented factual report that can be used if any issues or events arise in the future.

2.2 Problem Solving Methods for Implementing K3 in Construction Projects

As mentioned above, the K3 aspect plays an important role in supporting the success of a project, especially its role in complex project work, which becomes a primary scale that must receive special attention. According to Permenaker No.5/MEN/1996, the Occupational Safety and Health Management System, referred to as SMK3, is part of an overall management system that includes organizational structure, planning, responsibilities, implementation, procedures, processes, and resources needed for the development, implementation, achievement, review, and maintenance of OSH policies in order to mitigate work-related risks and create a safe, efficient, and productive workplace.

Determining the identification of K3 (Occupational Health and Safety) risks to be implemented in this project is very important in order to plan the stages of identification of all possible K3 risks that may occur in the project work environment. Additionally, this aims to understand the impact or risk of the activities that take place. The risks that may occur can be identified from the source, event, and the resulting effect. This also aims to ensure a safe working environment for everyone involved, therefore in the project planning, the identification will be classified into: 1. Most Vulnerable Areas, 2. Vulnerable Areas, 3. Safe Areas from Vulnerability or Gathering Points. Each area at the construction site has different levels of risk; some points at the construction site may be more vulnerable to hazards than others. In the implementation of this project, the identification carried out is as follows:

a) **The 1st Most Vulnerable Identification is at a location on a piece of railroad track as shown in the image below (Figure 2), where the risks that will occur are:**

1. Hit by a passing train, the impact caused injuries and death, communication is disrupted due to the noise of the train.
2. Falling down because there is no rail lane divider on the bridge with the road below, the impact caused injuries and death.
3. Risk of error in working due to limited lighting, the impact caused injuries due to work accidents, electrical short circuits and falling down resulting in injuries and death.
4. The number of workers is quite large, human error is possible due to working simultaneously, the impact caused, falling material, fire, electrical short circuits and human error resulting in injuries and death



Figure 2. Identification of the Most Vulnerable K3 Locations

b) **The next location identification which is the 2nd Most Vulnerable Category is the position at the construction point as shown in the image below (image 3), the risks of vulnerability that will occur are as follows:**

1. Falling down because there is no rail lane divider on the bridge with the road below the impact, which causes injuries and death.
2. Risk of error in working due to limited lighting impact, which causes injuries due to work accidents, electrical short circuits and falling down resulting in injuries and death.
3. The number of workers is quite large, it is possible that human error occurs because they work on two sides of the neon box at once, the impact caused, falling material, fire, electrical short circuits and human error resulting in injuries and death.
4. Sparks due to welding and electrical short circuits, the impact caused is fire, material falls onto the road resulting in injuries and death.
5. Material that falls on motorists passing on the road, the impact caused is injuries and death.



Figure 3. Identification of the Most Vulnerable K3 Locations

2.3 Mitigation Efforts Made for the Most Vulnerable Points

Based on the determination of the Highly Vulnerable Area above, efforts and Mitigation must be carried out so that the planning and implementation of K3 can be successful so as to support the success of the project. Some of the things that are prepared and carried out are as follows:

1. Prepare 2 special officers with complete PPE clothing who are on a railroad track equipped with HT communication equipment or the like, as well as security traffic lights so that they are expected to be able to give a sign to all workers when a train passes and can also give a signal that there are work activities around the location.
 2. Installation of rotary lights that can attract the attention of road users as well as provide a sign that there is a project activity at that location.
 3. Prepare portable fire extinguishers such as APAR and the like in case a fire occurs at any time.
 4. Prepare a medicine box and its equipment in case a work accident occurs at any time so that first aid can be carried out.
 5. Use of safety equipment during work, especially construction workers such as safety belts, PPE, Takel and other custom equipment that has been prepared for work aids.
 6. Prepare additional equipment as protection so that falling materials and sparks do not hit traffic drivers.
- c) The next location identification is the Vulnerable Category. This point is located in the position below the construction location as shown in the image below (image 4), the risks of vulnerability that will occur are as follows:**
1. The risk of worker error / human error causes work equipment or materials to fall so that it can hit traffic drivers resulting in injury and death.
 2. The concentration of drivers passing around the project is disturbed, due to worker activities that attract the attention of drivers, which results in disrupted driver concentration and causes traffic accidents resulting in injury and death.
 3. The accumulation of vehicles around the project site caused by project activities, resulting in crowds of people who have the potential for the hustle and bustle of traffic users who feel disturbed by project activities, thus inviting new problems.



Figure 4. Identification of K3 Vulnerable Location Points

2.4 Mitigation Efforts Made for Vulnerable Points

1. Ensure workers are healthy enough and have enough rest so that workers' concentration is fit and check that the prepared custom safety equipment is working properly.
 2. Prepare traffic signs containing project activity information and also traffic signs such as security flashlights, kuns or other signs as needed.
 3. Involve special security officers for traffic and police officers so that there is no buildup of traffic flow during project activities.
- d) **The next location identification is the Safe Category and also as a gathering point. This point is located at a radius of 20 m from the project location. The identification of this gathering point functions as follows:**
1. As the initial and final gathering point for all work teams involved, as well as a rescue gathering point in case of emergency.
 2. As the safest location for mitigation planning in emergency and critical situations.
 3. As a resting point for workers and temporary material warehouses, parking for workers' vehicles and material transport vehicles or the like that support project activities, as well as a place for checking the health of project workers.

2.5 Problem Solving Methods for Implementing K3 in Construction Projects

In the implementation of this project, considering the existing problems with the time constraints where the given duration is 6 hours starting from 24.00 WIB – 06.00 WIB, this is certainly not easy to carry out. If we refer to the implementation concept using commonly used Project Management methods such as Gantt chart, PERT, and CPM, this would certainly be very difficult to execute due to the presence of predecessor and successor elements in each work item that must be completed (Network diagram) (I. et al., 2022).

Considering the context of the time duration, the implementation of each work item must be carried out together, with a concept similar to the application of the Agile method (incremental and iterative). On the other hand, the implementation of this project requires a good acceleration so that each task can be completed responsively within the specified time. Each iteration has a predetermined time limit. With this method, it is hoped that one task can proceed without waiting for another task to finish. And in its implementation, the working team can focus on the tasks and durations given, focusing on specific sections like the Scrum Method. After that, each section is then created with a work stage column displaying the specified time, the executing team, and the progress or results achieved by each working team, which is similar to the implementation of the Kanban method (Do, Progress, Finish) (Tugiah, 2022).

After understanding the analysis of the project management method approach that will be used, the next step is to create a backlog with detailed task and time specifications. In this work, the implementation locations are divided into 2, namely

1. Backlog located in the workshop and 2. Backlog located at the project site (Mantik, 2019).

Workshop Backlog (Workshop Task Details)

This workshop backlog can be said to be a breakdown of the work tasks of the predecessor project before the implementation of the Location Backlog is carried out. This can be interpreted that there is no location backlog work if the work in the workshop backlog has not been completed. The details of the work that must be completed are as follows.

a) Construction Frame Preparation Work

1. This work is the work of making a plane frame as shown in the picture (blue) which is divided into 2 parts, each measuring 3m x 6m with a thickness of 50 cm in 2 pieces as shown in the picture below (Figure 5).



Figure 5. Construction area



Figure 6. Construction column pipe

2. Preparation of support for lower safety and locking of the field with pole/column pole (Figure 6).
3. Preparation of provision of 20-inch pipe/support column as many as 4 units, as well as making inner socks and coples/locks with a length of approximately 70cm each.
4. The purpose of implementing this work activity is to facilitate transportation work from the workshop and facilitate installation work of the field at the project location.

b) Preparation work for making Neon Box and Electrical Panel areas

1. At this stage is the work of Making Neon Box Fields measuring 2m x 3m as many as 6 units and continued with painting the field on one side with white.
2. After the first job is completed, it is continued with the installation of LED lights with a distance between each LED light of 15cm with horizontal row installation and continued with the installation of installation cables and testing the results of the lamp installation.
3. The next job is the Planning of Making an Electrical Panel by making 3 groups/MCBs using a timer delay, contactor and relay. This is intended so that when starting the ignition it does not require large power so that the installed electrical power can be more optimal.
4. The purpose of this activity is to facilitate the transportation work from the workshop to the project location, in addition to saving time when the commissioning test is carried out, and facilitating the installation of the Neon Box field at the project location. the neon box installation image (see in Figure 7).



Figure 7. Picture of Installing A Silver Neon Box

c) Preparation for ACP Frame Making Work for Pole Covers and Frameworks

1. At this stage is the stage of making the frame work that functions as a cover around the Neon Box which consists of making the left and right side frame frames, as well as the upper and lower frames of the Neon box using ACP type material with an angle iron frame.
2. The upper and lower frames are made with a length of 2.4 m each while the left and right side frames are made with a length of 4m.
3. Making a Frame for a Pole or column as many as 4 units.
4. The implementation of the above work must be in accordance with the planned design along with the installation method so that it is plug and play.
5. The purpose of this activity is to facilitate the transportation work from the workshop and facilitate the implementation of the installation of the frame at the project location according to the planned time duration (see in **Figure 8**).



Figure 8. (Installation of white and silver ACP frames)

d) Location Backlog (Rincian Tugas Di lokasi Proyek)

In this work plan, the allowed time for completing all tasks is 6 hours, starting from 24:00 WIB to 06:00 WIB, so practically all task details must be finished within the specified duration. With this Kanban board, it is expected that each person involved in every work item must understand the task descriptions assigned with discipline, the speed within the available time, so that they can complete the work adaptively and collaboratively.

This kanban board also shows indicators of highly vulnerable points for workers, so the involved K3 team must conduct detailed and comprehensive supervision. Similarly, each team leader and supervisor must work carefully, diligently, and effectively on the execution of tasks, adhere to the specified time duration, and be able to make decisions even in the most critical moments. The kanban board containing the backlog and task details, time, and points of vulnerability has been

thoroughly presented in the previous work meeting along with alternative solutions and decisions to be made in case any obstacles arise. The image of the kanban board containing the backlog can be seen below (**Figure.9**).

e) Backlog Stage Planning Table for Kertajaya Surabaya Viaduct Project

Table 1. Backlog table of work at the project location

No	Backlog	Qty	Unit	Action	PIC	Job Description of PIC & Katim	Start	Finish	Status	Information
1	All materials and work tools must be in the transport vehicle 6 hours before the start of the work, including safety equipment, street lights and signs.	8	team	Leader team	SPV Kontruksion	Prepare and turn off all materials and work tools for each team ready to be transported to the project location.	13.00	18.00	final	go to the location 21.00 WIB
2	K3 briefing and readiness of all workers involved in complete PPE	38	people	K3	K3	Briefing K3	23.00	23.15	final	Location project
3	Distribution of security officers for railway lines, installation of signs on traffic roads	2	people	K3	K3	Signal to workers	23.45	06.00	process	Locatiom project
4	Preparation of lighting equipment	4	people	staff		SPV listrik	23.45	06.00	process	vulnerable location 1
5	Implementation of work on installing 4 pole units	8	people	Katim 1, 2, 3, 4		SPV kontruksi	23.45	00.00	process	vulnerable location 2
6	Installation of worker protective equipment from the welding process	8	people	Katim 3, 4		SPV kontruksi	00.00	01.00	process	vulnerable location 1
7	Installation of workers in the construction sector	8	people	Udin agustri		SPV produksi	01.00	01.30	process	2.30 all works stop
8	Installation of neon box fields	4	people	Katim5dan staf		SPV listrik	01.00	02.30	prosess	vulnerable location 1
9	Re-implementation of neon box construction reinforcement	8	people	Danang kuncoro		SPV kontruksi	02.30	03.00	prosess	vulnerable location 2
10	Re-implementation of reinforcement of barrel construction	8	people	Katim 1, 2		SPV kontruksi	03.30	04.30	final	vulnerable location 2
11	Top APC installation	6	people	Katim 6		SPV kontruksi	04.00	05.00	final	vulnerable location 2
12	Installation of bottom frame	2	people	Katim 7		SPV kontruksi	04.00	05.00	final	allokasi
13	Release of construction safety equipment	4	people	Katim 3, 4		all	05.30	05.50	final	vulnerable location
14	Site cleanup	all	team	all			06.50 WIB	06.00 WIB	finish	vulnerable location

Based on the **Table 1**, it can be seen how the work details must be completed, and what if the available time is not finished. If such obstacles occur, then it can be seen from the backlog table section 7. In that section we can see that the backlog for installing construction fields with the available time duration has not been completed, but because the available

time has run out, the team working is required to be off from the work process they are doing, then continued and replaced by the neon box installation team until finished according to the available time duration. After that, the construction team is allowed to continue the neon box installation work and complete it until finished. This shows that each planned backlog stage of work does not have to wait for the previous stages to finish, so in this work planning, minimum work standards have been used at each existing backlog stage, so that if at any time each of the backlog stages is not finished because the available time is insufficient, then it is certain that the next backlog stage is safe to work on and continue and so on so that the completion time for all stages ends in accordance with the project objectives.

3. CONCLUSION

Of all the projects we have worked on, we have certainly encountered complex and intricate project activities. Several projects related to outdoor media construction work such as billboards, neon box videotrons, and other large-sized installations will often present similar, unique, and interesting cases to study. This happens because similar projects are not only related to technical aspects but also non-technical factors such as limited time, social constraints, which require special handling for each project with various accompanying issues, whether it be in terms of location, social impact, or competition with competitors. The execution of this work can also serve as a valuable lesson for all parties that not all construction project work always uses conventional project management methods (waterfall), such as Gantt Chart, Pert, or CPM in its planning. However, it is also necessary for us to explore broader project management knowledge, as these methods can greatly assist us in solving various complex issues in construction project work. One of the methods that might be relevant and worth trying is the implementation of project management using the Agile Method with Scrum and Kanban tools. This method has proven to be applicable in the execution of construction project work because it can provide a good acceleration boost, especially if the project requires speed in its completion. Therefore, it would not be wrong to try implementing it in the projects we handle, although additional tools are needed so that this project management can be utilized as an alternative to project management methods. In the implementation of this method, several technical difficulties were encountered, one of which is the risk of construction failure if its application in the work is not meticulous, the physical condition of the workers is not optimal, and so on. Meanwhile, the non-technical constraint faced is that the existing resources are not accustomed to working in a sprint-by-time manner with full discipline, so there is a need for habituation to work adaptively and collaboratively among teams and the surrounding environment, and a reminder conductor is still needed at each stage.

REFERENCES

- J. W. Soetjipto, D. A. Adinanda, and S. Arifin, "Pengendalian Penyelesaian Proyek Berbasis Kinerja Menggunakan Hybrid Earned Value - Crash Program," *JITS*, vol. 22, no. 2, p. 127, May 2024, doi: 10.12962/j2579-891X.v22i2.15996.
- Andrian Firdaus Yusuf A, "Analysis of the Implementation of Bridge Construction Project Risk." *Enrichment Journal of Management*, 12 vol.12, Nov. 2021, 957-964
- A. W. Priambudi and A. F. Y. A. Qordhowi, "Studi Kinerja Biaya dan Waktu (Studi Kasus: Proyek Pembangunan Gedung F Poliklinik Terpadu RSUD Prof. Dr. Soekandar)," *JUTIN*, vol. 7, no. 3, pp. 1768–1776, Jul. 2024, doi: 10.31004/jutin.v7i3.31705.
- N. A. Hidayah and Nur Muhammad Asnadi, "Penerapan Metode Agile Dalam Manajemen Proyek: Systematic Literature Review," *jupel*, vol. 6, no. 1, pp. 43–53, Feb. 2024, doi: 10.32520/jupel.v6i1.2858.
- Y. Alfiansah and B. Kurniawan, "Analisis Upaya Manajemen K3 Dalam Pencegahan Dan Pengendalian Kecelakaan Kerja Pada Proyek Konstruksi Pt.X Semarang," *Jurnal Kesehatan Masyarakat*, vol. 8, 2020.
- Perda-Kota-Surabaya-No-5-2005-Pelestarian-Bangunan-danatau-Lingkungan-Cagar-Budaya.
perwali 42 Tahun 2017 surabaya.
- "Permen-Kemen-Tenaga-Kerja-No.-05-Tahun-1996-Sistem-Manajemen-K3.
- I. G. N. Putra Wijaya, N. M. Jaya, and I. D. K. Sudarsana, "Manajemen Risiko Keselamatan Dan Kesehatan Kerja (K3) Pada Pelaksanaan Pembangunan Shortcut Denpasar-Singaraja," *jsn*, vol. 10, no. 1, p. 52, Jan. 2022, doi: 10.24843/SPEKTRAN.2022.v10.i01.p07.

M. Fazis, "Perencanaan Proyek Dan Penjadwalan Proyek. Mengintip dasar pengembangan sistem informasi dengan metode Agile. Why Agile Rocks?," *Jurnal Sisfo Unsurya*, vol. 6, no. 1, Jun. 2014, doi: 10.35968/jsi.v6i1.277.