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OPTIMIZATION OF THE REPORTING AND MONITORING SYSTEM FOR AIR CONDITIONING MAINTENANCE AT PT PPA SITE SKS

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ABSTRACT

An effective and efficient AC maintenance reporting and monitoring system is very important to ensure the smoothness and reliability of the air conditioning system. The aim of this research is to analyze the current AC maintenance reporting and monitoring system at PT PPA Site SKS. This research uses a qualitative research method with a case study approach. Data collection techniques in this research are observation and document study. The data analysis technique used in this research is qualitative analysis using the grounded theory method. The research results show that the optimization of the reporting and monitoring system for AC maintenance repoers at PT PPA Site SKS is carried out by creating inspection and maintenance schedules periodically, creating AC Number Lists and QR codes on AC units to make it easier for the PIC to input maintenance reports, accessing the AppSheet on the device each PIC is related to AC inspection and maintenance reporting, and can monitor previous maintenance history reports, appoint an Electrical Team PIC related to AC maintenance and maintenance reporting, as well as carry out socialization and coaching to the appointed PIC Admin regarding AC maintenance and maintenance reporting mechanisms via Appsheet. After being evaluated, this effort shows that AC maintenance and upkeep can be monitored 100%, and reporting is more effective (does not require admin input in every AC maintenance and maintenance report).

KEYWORDS *Reporting System, Monitoring Report, Maintenance, AC*

INTRODUCTION

The company cannot overlook the importance of maintaining the optimal performance of the AC system through regular maintenance activities in managing daily operations. AC is not just an air conditioning device but also a crucial asset

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that affects the comfort and productivity of the work environment. Companies that perform regular AC maintenance ensure that the devices remain in good condition and function optimally (Sudirman, 2020). Without proper maintenance, ACs are vulnerable to damage, performance degradation, or even total failure, which can disrupt company operational activities. Moreover, regular maintenance can also extend the lifespan of ACs, reduce the risk of sudden breakdowns, and avoid unexpected repair costs (Putra & Irawan, 2020).

When managing a complex and critical AC system for company operations, reporting and monitoring of AC maintenance reports are essential and inevitable steps. Regular and accurate reporting on AC maintenance allows companies to have a clear understanding of their AC conditions, including maintenance history, potential issues, and actions taken to address them (Partawijaya, 2022). With comprehensive data, companies can make better decisions regarding preventive maintenance, maintenance scheduling, and resource allocation (Karina et al., 2020).

PT Putra Perkasa Abadi (PPA) has been cooperating with Surya Kalimantan Sejati (SKS), a subsidiary of PT Dian Swastatika Sentosa Tbk (DSSA), since 2019. This collaboration, which has lasted for approximately 3 years, is located in the Rungan district, Gunung Mas regency, Central Kalimantan. In this collaboration, PPA has deployed 337 human resources and 105 heavy equipment to the project site (Maulana, 2020). In this partnership, PPA consistently delivers its best performance, in line with PPA's commitment to delivering maximum value in every ongoing project (PPA, 2022).

PT PPA Site SKS faces a series of issues related to AC maintenance management and monitoring that affect the smooth operation of the company. One of them is the lack of systematically scheduled AC inspections, leading to potential issues not being detected quickly (Widiastuti et al., 2022). Additionally, the company lacks a system that allows real-time monitoring of electrical maintenance progress, resulting in a lack of visibility into ongoing repair statuses (Juliani et al., 2023).

The absence of unit numbers or barcodes on each AC unit is also a drawback, making problem identification and reporting less efficient. Furthermore, the company has not appointed a specific electrical team PIC responsible for reporting and repairs, making the responsibility for AC maintenance unclear (Ratnawita & Argiansyah, 2022). Lastly, the lack of socialization regarding the monitoring system for maintenance reports also hampers ensuring the effective use of the system by the entire team. Therefore, addressing these various issues is crucial for PT PPA Site SKS to improve efficiency and effectiveness in AC maintenance management and overall operational smoothness.

The novelty of this research lies in its object of study, namely the optimization of the reporting and monitoring system for AC maintenance reports at PT PPA Site SKS, which has not been previously studied. The practical implications of this research are significant improvements in the efficiency and effectiveness of AC maintenance management at PT PPA Site SKS. Thus, by implementing a more structured and integrated reporting and monitoring system, the company can avoid operational disruptions caused by undetected or untreated AC damage. The objective of this research is to analyze the current reporting and monitoring system for AC maintenance reports at PT PPA Site SKS.

RESEARCH METHOD

This study utilizes a qualitative research method with a case study approach. Qualitative research method is an approach used to understand complex phenomena within their natural context in depth (Handoko et al., 2024). This approach emphasizes understanding the meanings given by individuals or groups to their experiences, as well as the social, cultural, and historical contexts in which the phenomena occur (Kusumastuti & Khoiron, 2019). The data collection technique in this study involves direct observation by the researcher of the ongoing reporting and monitoring process of AC maintenance in the field. Additionally, document studies are conducted to analyze relevant documents such as company policies, previous maintenance reports, and documents related to existing reporting systems. The data analysis technique used in this study is qualitative analysis using grounded theory method. The collected data is analyzed by identifying themes and patterns that emerge from the data, and then constructing a theory that explains how the reporting and monitoring system for AC maintenance reports can be optimized.

RESULT AND DISCUSSION

The reporting system is a report that describes the accountability system from subordinates to superiors. A good reporting system is needed in order to monitor and control managerial performance in carrying out the budget that has been set (Fathia et al., 2017). While monitoring report refers to the process of monitoring and monitoring reports produced by a particular system or activity. The reporting and monitoring report system implemented by PT PPA Site SKS has various problems that need to be corrected and optimized. One of the main problems is the slow lead time in reporting and monitoring maintenance and inspection of air conditioners. This is due to several factors, including complex manual processes of collecting and inputting data, lack of integration between the systems used, and lack of skills and adequate understanding of users related to the technology used. In an effort to overcome this problem, it is necessary to optimize the system with a focus on accelerating the lead time of reporting and monitoring AC maintenance and inspection.

The first step in an effort to optimize the reporting system and monitoring AC maintenance reports at PT PPA Site SKS is to make periodic inspection and maintenance schedules.

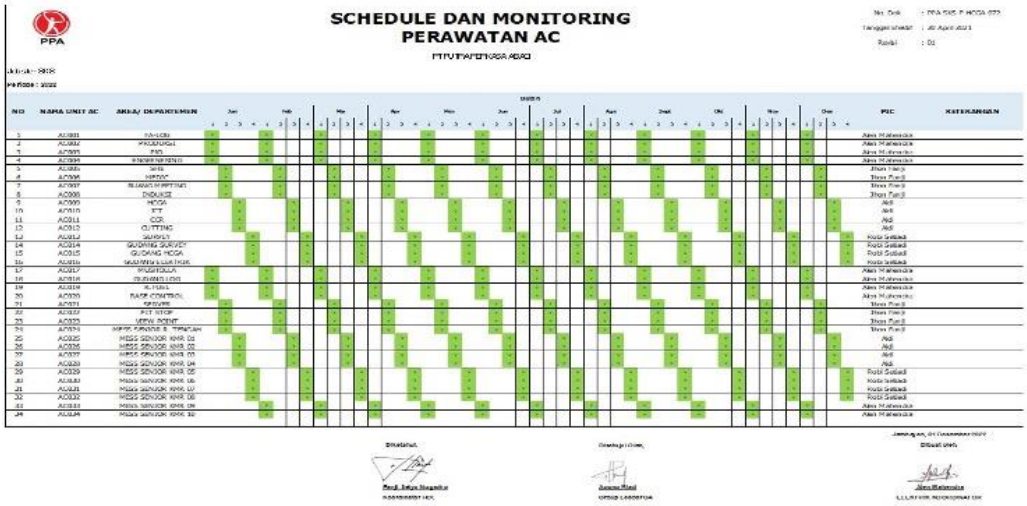

Figure 1. AC Maintenance Schedule and Monitoring

This step is important because a regular schedule allows the company to systematically monitor and maintain each AC unit. So by having a predetermined schedule, companies can identify the right time to carry out inspections, preventive maintenance, and replacement of necessary parts. This helps reduce the risk of system failure, increase device life, and avoid unwanted disruptions in company operations. In addition, creating periodic schedules also allows companies to allocate resources more efficiently, including manpower and budget, for necessary maintenance activities.

The second step in an effort to optimize the reporting system and monitoring AC maintenance reports at PT PPA Site SKS is to make a List of AC Numbers and QR codes on each AC unit.

AC003	PANASONIC	PID	1½PK/1.22W/6.5A	R32
AC004	PANASONIC	ENGEENERING	1PK/930w/4.3A	R32
AC005	PANASONIC	SHE	1PK/930W/4.3A	R32
AC006	PANASONIC	MEDIC	1½/1.22w/6.5A	R32
AC007	PANASONIC	RUANG MEETING	1PK/930W/4.3A	R32
AC008	PANASONIC	INDUKSI	2PK/2.08w/11.19A	R32
AC009	PANASONIC	HCGA	1PK/930W/4.3A	R32
AC010	PANASONIC	ICT	¾PK/750W/3.8A	R32
AC011	PANASONIC	CCR	¾PK/750W/3.8A	R32
AC012	PANASONIC	CUTTING	1PK/930W/4.3A	R32
AC013	PANASONIC	SURVEY	1PK/930W/4.3A	R32
AC014	PANASONIC	GUDANG SURVEY	1PK/930W/4.3A	R32
AC015	PANASONIC	GUDANG HCGA	1PK/930W/4.3A	R32
AC016	PANASONIC	GUDANG ELEKTRIK	1PK/930W/4.3A	R32
AC017	PANASONIC	MUSHOLLA	1PK/930W/4.3A	R32
AC018	PANASONIC	GUDANG LOG	1PK/930W/4.3A	R32
AC019	PANASONIC	R.FUEL	1PK/930W/4.3A	R33
AC020	PANASONIC	BASE CONTROL	1PK/930W/4.3A	R34
AC021	PANASONIC	SERVER	1PK/930W/4.3A	R32
AC022	SHARP	PIT STOP	½PK/400W/2.5A	R32
AC023	PANASONIC	VIEW POINT	1PK/930W/4.3A	R34

Figure 2. Creation of AC Number List and QR code

This step aims to facilitate the Person in Charge (PIC) in identifying and recording maintenance reports efficiently. By providing clear identification numbers and QR codes on each AC unit, the PIC can easily access information related to the AC unit, such as maintenance history, technical specifications, and maintenance instructions. QR codes also enable the PIC to quickly scan the required information using their mobile devices. Thus, the creation of AC Number Lists and QR codes not only simplifies the maintenance reporting process but also helps improve the accuracy and speed of recording information related to the condition and maintenance of each AC unit. This step is crucial in ensuring transparency and efficiency in AC maintenance management at PT PPA Site SKS. The third step in optimizing the reporting and monitoring system for AC maintenance reports at PT PPA Site SKS is to provide access to AppSheet on each PIC's device for inspection and maintenance reporting of AC, as well as allowing monitoring of previous maintenance report history.

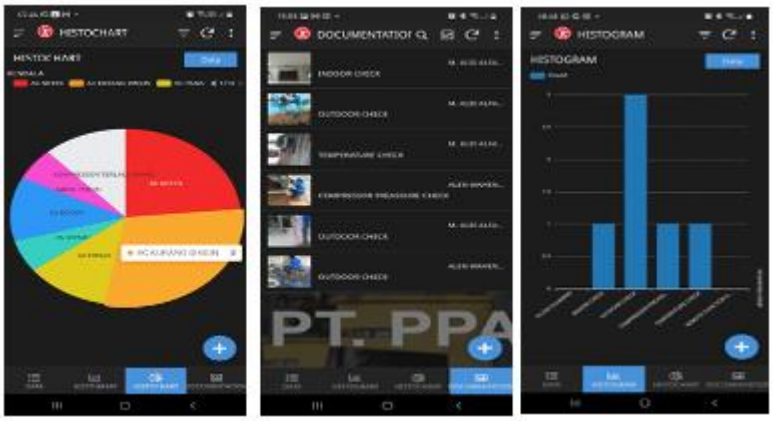

Figure 3. Access to AppSheet

This step provides access to the AppSheet application, allowing the PIC to easily access prepared maintenance reporting forms, input information related to inspections, maintenance, or repairs performed on the AC unit, and submit reports directly through their mobile devices. Additionally, by utilizing the monitoring report history feature, the PIC can view previous maintenance records for each AC unit, including inspection, maintenance, and repair notes. This enables the PIC to monitor the performance and condition of the AC more effectively, as well as identify patterns or trends that may indicate issues requiring further attention. The fourth step in optimizing the reporting and monitoring system for AC maintenance reports at PT PPA Site SKS is the appointment of the Electrical PIC Team responsible for maintenance reporting and AC maintenance.

Table 1. AC maintenance and reporting

No	NRP	Name	Position
1	19020777	Alen Mahendra	Elerctrican GA
2	21000955	Robi Setiadi	Elerctrican GA
3	22002481	Muhammad Aldi Alfatih Nur	Elerctrican GA

4	20000195	Jhon Fanji	Elerctrican GA

Appointment of the Electrical PIC Team specifically tasked with managing and monitoring all activities related to AC maintenance and care, the company can ensure more effective coordination in managing the AC system as a whole. The Electrical PIC Team is responsible for coordinating all activities related to inspections, routine maintenance, and necessary repairs on AC units, as well as ensuring that reporting is done accurately and promptly. Thus, the appointment of the Electrical PIC Team is a crucial step in improving the efficiency and effectiveness of AC maintenance management at PT PPA Site SKS. This step also helps ensure clear responsibilities and organized workload distribution within the team to achieve optimal maintenance reporting and monitoring goals. The fifth step in optimizing the reporting and monitoring system for AC maintenance reports at PT PPA Site SKS is to conduct socialization and coaching for the designated Admin PIC regarding the mechanism for reporting AC maintenance and care via AppSheet.

Figure 4. Socialization and coaching for Admin PIC

The purpose of this socialization and coaching is to ensure that the Admin PIC has a deep understanding of how to use the AppSheet application to report and monitor AC maintenance effectively. Through the socialization session, the Admin PIC will be provided with comprehensive explanations of the application features, the steps to fill out reporting forms, and how to monitor the generated maintenance reports. Additionally, the coaching session will provide an opportunity for the Admin PIC to receive direct guidance in using the application, answering questions, and resolving any issues that may arise during the reporting process.

Optimizing the reporting and monitoring system for AC maintenance reports at PT PPA Site SKS is an important effort to enhance the efficiency and effectiveness of AC maintenance management. However, like any implementation of change, evaluation is necessary to ensure that the steps taken have yielded the expected results. Evaluation needs to be conducted to assess whether the new system has successfully improved the company's operational performance related to AC maintenance. This evaluation will also help identify potential problems or deficiencies in the implementation of the new system and enable the company to identify areas that need further improvement or enhancement.

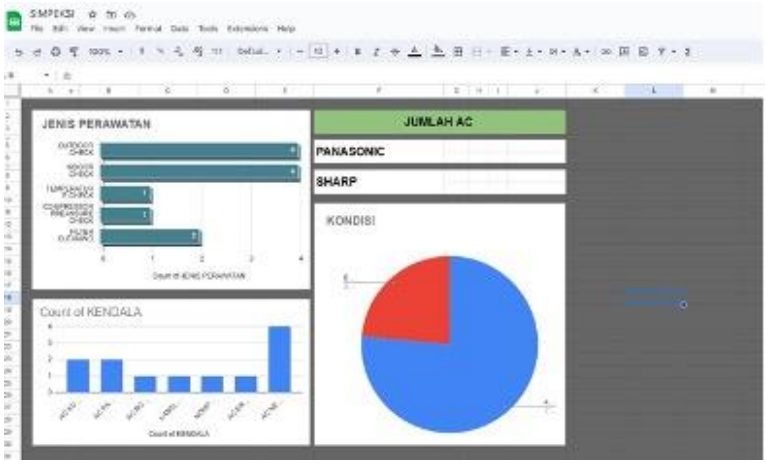

Figure 5. Evaluation of Improvement Results

The evaluation results of the optimization of the reporting and monitoring system for AC maintenance reports at PT PPA Site SKS show significant progress. Firstly, there is an achievement that AC maintenance and care can be monitored 100%. This indicates that every maintenance step, whether routine inspections, preventive maintenance, or repairs, can be tracked and monitored accurately. The use of an integrated system allows the company to monitor every maintenance activity in detail, thus minimizing the risk of failure or deficiencies in AC maintenance.

The evaluation results also show minimal paper usage in the reporting process. With the implementation of digital systems such as AppSheet, paper usage has been significantly minimized. This not only reduces costs and inefficient resource usage but also speeds up the reporting process. PICs no longer need to fill out forms manually or submit physical reports, which can be time-consuming and prone to errors. Instead, they can directly use the digital application to submit real-time reports, improving efficiency and accuracy in maintenance reporting.

Reporting becomes more effective by eliminating the need for admin input in every AC maintenance and care report. With an automated and integrated system, the information inputted by PICs can be recorded and processed in the system without manual intervention from admins. This not only saves time but also reduces the risk of human errors in the reporting process. Therefore, the evaluation results indicate that the optimization of the reporting and monitoring system for AC maintenance at PT PPA Site SKS has provided significant benefits in the effectiveness and efficiency of company operations.

CONCLUSION

The optimization of the reporting and monitoring system for AC maintenance at PT PPA Site SKS is carried out through a series of strategic steps. These steps include scheduling regular inspections and maintenance, as well as providing AC unit numbers and QR codes for each unit. These measures aim to facilitate the Person in Charge (PIC) in accurately inputting maintenance reports. Furthermore, providing access to AppSheet on each PIC's device enables real-time reporting of AC inspections and maintenance, while monitoring previous maintenance report

history allows for deeper analysis of AC performance. The appointment of a dedicated Electrical PIC Team to report AC maintenance and care is also a crucial step. Additionally, socialization and coaching for Admin PICs on the reporting mechanism via AppSheet have been conducted, ensuring a good understanding of the new system. Post-implementation evaluation indicates that AC maintenance and care can be monitored 100%, paper usage can be minimized, and reporting becomes more effective without requiring admin input for each maintenance and care report. Thus, these steps bring significant changes in the efficiency and effectiveness of PT PPA Site SKS's operational management of AC maintenance.

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