

OPTIMIZATION OF WORK CULTURE THROUGH THE "SI PEN" PERFORMANCE MONITORING APPLICATION IN THE FIELD OF FIREFIGHTING AND RESCUE IN THE MAHAKAM ULU REGENCY AREA

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Abstract

This study aims to analyze the optimization of work culture through the implementation of the Performance Monitoring System (SI PENA) performance monitoring application in the Fire and Rescue Department of Mahakam Ulu Regency. The background of the study is based on the need for public organizations to improve the effectiveness of apparatus performance through digital innovation that not only functions as a monitoring instrument, but also as a catalyst for work culture change. This study uses a descriptive qualitative approach with data collection techniques through in-depth interviews, observations, and document reviews. Research informants include the Head of Division, Head of General and Personnel Sub-Division, Fire Department staff, and Regional Secretariat officials. The research results show that SI PENA has had a positive impact on the five dimensions of Electronic Performance Monitoring (EPM): purpose, invasiveness, constraints, target control, and synchronicity. This application effectively strengthens transparency, accountability, and real-time reporting synchronization, although it still faces challenges such as limited digital infrastructure and employee psychological resistance due to the feeling of being monitored. From a work culture perspective, SI PENA has been proven to encourage increased discipline, openness, mutual respect, and cooperation among employees. Thus, this application functions not only as a performance monitoring tool, but also as an instrument that strengthens the values of the organization's work culture. The study's conclusions confirm that optimizing work culture through SI PENA requires adaptive policy support, increased staff capacity, and strengthened information technology infrastructure. The practical implications of this research are the need to integrate technology, organizational culture, and leadership to strengthen public sector performance.

Keywords: *work culture, performance monitoring, Electronic Performance Monitoring, SI PENA*

1. Introduction

The changing landscape of public services in the digital era has encouraged government organizations to innovate in their systems for monitoring and managing employee performance. Globally, the use of digital technology in Electronic Performance Monitoring (EPM) is increasing due to its proven ability to improve accountability, efficiency, and transparency in the bureaucracy (Jeske & Santuzzi, 2015). In many countries, the implementation of EPM is associated with a more disciplined, professional, and responsive work culture to public needs (Bhave, 2014). In line with these developments, public organizations are required to adopt digital-based performance monitoring systems to address the increasingly complex challenges of modern bureaucracy. In the national context, Indonesia has emphasized the importance of bureaucratic reform through government digitalization, as outlined in Presidential Regulation Number 95 of 2018 concerning the Electronic-Based Government System (SPBE). This regulation emphasizes the need for regional governments to develop digital applications to support performance monitoring, transparency of public services, and improvement of the work culture of state civil servants. However, in practice, there remains a gap between regulation and implementation. For example, a 2022 report from the Ministry of Home Affairs indicates that several regions face challenges such as low civil servant discipline, weak performance documentation systems, and minimal use of technology in work management. This impacts the effectiveness of public services, particularly in critical sectors such as firefighting and rescue.

This challenge is particularly pronounced in regional areas, including Mahakam Ulu Regency, East Kalimantan, which is a relatively new region with limited infrastructure. The Mahakam Ulu Regency Fire and Rescue Department (Damkar) plays a vital role in protecting the community from the risk of fire and other disasters. However, a growing trend suggests a negative public perception that firefighters tend to be passive or less productive when not dealing with emergencies. This gap poses serious challenges to the image and work culture of the Fire Department, where the public expects discipline, openness, and professionalism in every aspect of their duties. Various performance reports in the Fire and Rescue sector indicate obstacles such as delayed responses, ineffective coordination, and weak daily documentation systems (BPKP, 2021). These factors exacerbate the gap between the ideal work culture and the reality on the ground. A good work culture is, in fact, a crucial foundation for the success of public organizations. Robbins (in Purnamasari, 2015) emphasizes that work culture is built on four key indicators: discipline, openness, mutual respect, and cooperation. These four indicators are key prerequisites for high-risk organizations like the Fire and Rescue Department, as they operate in situations that demand rapid coordination, teamwork, and accurate decision-making.

To address these challenges, the Mahakam Ulu Regency Government developed a digital-based application called the Performance Monitoring System (SI PENA). This application is an implementation of the EPM concept that enables real-time monitoring of employee activities, including attendance, daily reports, and work achievements. The implementation of SI PENA is expected to be a solution in building a more disciplined, transparent, and accountable work culture. Ravid et al. (2020) stated that the success of EPM is determined by five dimensions: purpose, invasiveness (level of intrusion into privacy), constraints, target control (control held by employees), and synchronicity (time synchronization). Through these five dimensions, SI PENA is expected to create a balance between strict supervision and a sense of fairness and comfort for employees. However, implementing digital-based monitoring applications is not without challenges. Previous research has shown employee resistance to stricter performance monitoring systems, particularly when they are not accompanied by adequate socialization and managerial support (Jeske & Santuzzi, 2015). In Mahakam Ulu, geographical challenges, limited digital infrastructure, and low technological literacy are additional factors that can impact the effectiveness of SI PENA implementation. Therefore, an in-depth study is essential to assess the extent to which this application is truly capable of optimizing work culture, particularly in the Fire Department, which has unique and high-risk work characteristics. Given this context, this research is crucial because it can provide both theoretical and practical contributions.

Theoretically, this research enriches the study of the integration of EPM theory and work culture within the context of local public organizations. Practically, the results of this study can serve as a reference for local governments in developing more effective, transparent performance monitoring strategies oriented toward improving work culture. Furthermore, this research can address public expectations for prompt, professional, and accountable public services. Although numerous studies in Indonesia have discussed the relationship between organizational culture, work discipline, training, leadership, and other internal factors on the performance of fire and rescue workers (Yusuf, 2020; Sari, Pratiwi, & Afriyanti, 2023; Sumardika & Suwandana, 2019), these studies generally do not specifically explore the use of digital performance monitoring applications as EPM tools, especially in the context of regions with infrastructure challenges and local characteristics such as Mahakam Ulu Regency. For example, a study in Padang City by Sari et al. (2023) examined the influence of organizational culture and work discipline on employee performance with work motivation as an intervening variable, but did not focus on the integration of digital monitoring technology. Similarly, a study in Badung Regency by Sumardika and Suwandana (2019) showed that transformational leadership and work discipline were positively related to employee performance, but did not include the dimensions of invasiveness, target control, or synchronicity as outlined in the EPM framework.

Furthermore, Yusuf's (2020) research in Parepare City focused more on organizational culture and performance training, without addressing the application-based performance monitoring aspect. Thus, the emerging research gap is the lack of empirical studies examining how digital performance monitoring applications (such as SI PENA) can influence work culture through EPM dimensions (Ravid et al., 2020) in Fire and Rescue units in areas with limited infrastructure and geographical challenges, and the extent to which these applications are accepted and effective in modifying work culture behaviors. Based on the description, the focus of this research is formulated in the following question, namely how to Optimize Work Culture Through the "Si Pena" Performance Monitoring Application in the Firefighting and Rescue Sector in the Mahakam Ulu Regency Area?

2. Literature review

Advances in information technology have transformed the way organizations monitor and manage human resource performance. The concept of Electronic Performance Monitoring (EPM) refers to the use of digital tools to electronically observe, record, and analyze employee work behavior and task performance. Ravid, Tomczak, White,

and Behrend (2020) developed a comprehensive EPM framework that emphasizes key dimensions such as purpose (monitoring), invasiveness (level of intrusion on privacy), constraints (limitations on data access), target control (the extent to which the monitored can control the data), and synchronicity (synchronization/timing of data collection). This framework serves as a theoretical basis for assessing how applications such as SI PENA can be designed to be effective, balancing the need for monitoring with the protection of employee rights. Several empirical studies have examined the impact of EPM on employee performance and well-being. Bhawe (2014) found that superiors' use of EPM can be positively correlated with improvements in several performance dimensions, but excessive or unfair use of EPM can have negative effects, such as decreased job satisfaction and anxiety. These findings underscore the importance of EPM design and implementation that considers procedural fairness and employee autonomy. Bhawe's findings are relevant to the public service context: while technology enables increased accountability, implementation that is insensitive to employee perceptions can hinder organizational goals.

From a psychosocial and organizational perspective, other research highlights the psychological consequences of EPM. Jeske and Santuzzi (2015) reviewed the implications of electronic monitoring on psychological variables such as stress, privacy, and perceptions of organizational trustworthiness. They recommended transparent implementation of EPM (clear objectives and uses), the establishment of feedback mechanisms, and policies that limit invasive aspects to minimize negative impacts on employees. These recommendations are directly relevant to the development of the PENA IS: socialization, data access policies, and user participation must be part of the implementation so that EPM fosters, rather than undermines, work culture. Studies on the use of monitoring technology in emergency services contexts demonstrate both practical applications and technical challenges. Research and projects in the field of firefighting and emergency response illustrate the use of sensors, location tracking, and mobile applications to monitor response times, team conditions, and operational performance indicators. Research and prototype examples (e.g., CoenoFire, and studies on intelligent monitoring systems in fire safety) demonstrate that real-world mission performance measurements can be automated and analyzed to develop firefighting team capabilities (e.g., time metrics, task allocation, and team coordination).

However, these publications also emphasize the need for hardware interoperability, field connectivity, and communication safety aspects under extreme conditions—critical factors for geographic contexts like Mahakam Ulu (Research on Intelligent Monitoring of Fire Safety and Fire Rescue, 2023). Organizational culture theory provides a framework for understanding how surveillance technology can influence collective norms, values, and behavior. Schein (2017) explains that organizational culture manifests itself at three levels: artifacts, expressed values, and tacit underlying assumptions, all of which influence daily behavior. In the context of work culture in public service agencies, Robbins (in Purnamasari, 2015) emphasizes indicators such as discipline, openness, mutual respect, and cooperation as pillars of an effective work culture. Integration of EPMs such as SI PENA should consider how application features and policies reinforce rather than undermine these values; for example, by facilitating transparency of task performance data, recognizing good performance, and providing constructive feedback that fosters mutual respect and cooperation.

3. Research Methodology

This study uses a descriptive qualitative approach that aims to understand in depth the implementation of the Performance Monitoring System (SI PENA) application in relation to optimizing work culture in the Fire and Rescue Division of Mahakam Ulu Regency. This approach was chosen because it is able to explore the perceptions, experiences, and interpretations of informants related to the phenomenon being studied (Creswell & Poth, 2018). Research informants were determined using a purposive sampling technique (Palinkas et al., 2015), namely selecting individuals who are considered relevant and understand the research problem. The main informants in this study include the Head of the Fire and Rescue Division, the Head of the General and Personnel Sub-Division, Fire Department staff, and officials within the Mahakam Ulu Regional Secretariat who are involved in the implementation of the SI PENA application. Data were collected through in-depth interviews, observation, and documentation as a triangulation effort (Denzin, 2017). Data analysis used the interactive model of Miles, Huberman, and Saldaña (2014), which includes data reduction, data presentation, and conclusion drawing. Data validity was ensured through triangulation of sources, techniques, member checking, and peer debriefing (Lincoln & Guba, 1985). All findings were analyzed with reference to the Electronic Performance Monitoring theory (Ravid et al., 2020), which consists of five main dimensions (purpose, invasiveness, constraints, target control, synchronicity), and Robbins' work culture theory (in Purnamasari, 2015), with indicators of discipline, openness, mutual respect, and cooperation.

4. Results

The findings of this study indicate that the implementation of the Performance Monitoring System (SI PENA) application in the Fire and Rescue Department of Mahakam Ulu Regency has a real impact on employee work patterns, both in terms of performance monitoring based on Electronic Performance Monitoring (EPM) and in shaping the organizational work culture. Analysis of the results of interviews with various informants (Head of Division, Head of General Affairs, Fire Department staff, and Regional Secretary officials) shows how SI PENA influences the five dimensions of EPM purpose, invasiveness, constraints, target control, synchronicity as well as Robbins' work culture indicators, namely discipline, openness, mutual respect, and cooperation. From the purpose dimension, informants emphasized that SI PENA is viewed as an instrument to strengthen transparency and accountability. The Head of the Fire Department stated that the application makes it easier for superiors to view daily staff performance, including attendance and activity reports. This was supported by staff who said it was easier to report work because the system runs digitally and is well-documented. Thus, the primary objective of performance monitoring through SI PENA aligns with the direction of electronic-based bureaucratic reform.

However, the invasiveness dimension exhibits its own dynamics. Some informants felt that SI PENA's presence created a feeling of "constant surveillance." One staff member expressed that she "sometimes felt anxious if she didn't file a report promptly," although the Head of General Affairs considered the surveillance reasonable as long as it served a positive purpose. This phenomenon indicates a tension between the control function and employee psychological well-being. In practice, constraints are a major obstacle, particularly related to the limited internet network infrastructure in Mahakam Ulu. The Regional Secretary stated that reporting delays often occur when staff are working in the field with limited resources. This obstacle demonstrates that despite a well-designed system, external environmental limitations remain a significant factor in the successful implementation of digital applications in the region. Meanwhile, the target control dimension showed a positive side because employees still had control over the data they input. One staff member explained that they "wrote down the actual work," allowing the application to maintain employee autonomy. On the other hand, the synchronicity dimension was deemed effective because data could be monitored in real time by superiors. The Division Head emphasized that this mechanism facilitated follow-up in the event of delays or discrepancies in reports.

Other findings indicate that SI PENA has also had a significant impact on shaping the organization's work culture. From a discipline perspective, employees are more disciplined in completing reports because delays are immediately visible in the system. One staff member stated that the application makes them more compliant with schedules. Transparency has also improved, as expressed by the Head of General Affairs: "Everything is open: attendance, activities, and reports. So there's no longer any excuse to hide work." Indicators of mutual respect emerge when employees feel that even the smallest contributions are now recorded and recognized. One staff member emphasized that "even the smallest work now counts, so we feel more appreciated." Teamwork is also easier to observe and evaluate because each member has a clear performance record, allowing the Head of Division to assess who is active or passive in supporting collective tasks. Overall, the results of this study confirm that SI PENA serves not only as a performance monitoring tool but also as an instrument for transforming work culture. This application helps create a more disciplined and transparent work environment, values individual contributions, and strengthens teamwork. However, the success of SI PENA implementation remains influenced by external factors such as network conditions, as well as internal factors such as employee perceptions of being monitored.

5. Discussion

The findings of this study demonstrate that the Performance Monitoring System (SI PENA) application has a significant impact on employee work patterns in the Fire and Rescue Department of Mahakam Ulu Regency, both in terms of Electronic Performance Monitoring (EPM)-based supervision and the formation of organizational work culture. Employees generally understand that the primary purpose of using this application is to strengthen transparency and accountability. This aligns with the view that EPM effectiveness depends on the clarity of the objectives or purposes communicated to employees (Ravid et al., 2020). When employees perceive that monitoring is conducted for clear organizational purposes, such as improving discipline and reporting quality, they are more likely to accept the system. Other research also shows that EPM can improve work performance when employees understand its benefits to both the organization and themselves (Bhave, 2014). However, some informants expressed discomfort due to the feeling of being constantly monitored. This indicates a potential problem in the invasiveness dimension. Previous research has shown that electronic surveillance perceived as overly intrusive can cause stress and anxiety (Jeske & Santuzzi, 2015). Recent studies have also confirmed that privacy concerns and low levels of organizational trust can reduce job satisfaction in the context of EPM implementation (Brinson et al., 2024). This means that although SI PENA brings benefits in terms of supervision, local governments still need to establish policies

that balance supervision with employee psychological well-being to avoid resistance. Another aspect that emerged was technical limitations or constraints, where unstable internet connections hampered data input by employees working in blind spots. Such infrastructure limitations have also been found in various studies on the adoption of monitoring technology in the public sector, which show that the effectiveness of digital systems is often determined more by infrastructure readiness than by application design (Palinkas et al., 2015). Nevertheless, the target control and synchronicity dimensions performed quite well. Employees retained control over the data they input, fostering a sense of autonomy, while superiors received real-time reports, enabling faster decision-making. This is consistent with the finding that a balance between employee control and real-time monitoring enhances the effectiveness of EPM systems (Ravid et al., 2020).

From a work culture perspective, research shows that SI PENA strengthens four key indicators: discipline, openness, mutual respect, and cooperation (Purnamasari, 2015). Employee discipline improves because late reports are immediately visible in the system, forcing employees to comply with regulations. Transparency also increases because attendance and work activity data can be directly monitored by superiors, in line with the view that transparency strengthens organizational culture (Schein, 2017). Furthermore, employees feel their contributions are more appreciated because every task, no matter how small, is now recorded in the application. This feeling of appreciation boosts work motivation and loyalty to the organization. Furthermore, teamwork also becomes more evident because the contribution of each member is clearly visible, thus strengthening coordination and solidarity in carrying out tasks. The integration of EPM and work culture also aligns with literature emphasizing the role of organizational culture in the success of public sector digital transformation. Research shows that e-monitoring combined with leadership supervision and job satisfaction can significantly improve civil servant performance (Nuraeni et al., 2025). Therefore, the implementation of SI PENA in Mahakam Ulu can be seen as an innovation that not only introduces monitoring technology but also transforms the work culture of civil servants. This discussion confirms that the SI PENA application has successfully increased the effectiveness of performance monitoring and strengthened employee work culture. However, challenges remain, particularly those related to the potential for feelings of over-monitoring and limited digital infrastructure. Therefore, the continued implementation of this application depends heavily on adaptive policies, increased employee capacity, and adequate infrastructure support.

6. Conclusion

This study shows that the implementation of the Performance Monitoring System (SI PENA) application in the Fire and Rescue Department of Mahakam Ulu Regency has contributed significantly to optimizing the work culture of the apparatus. From the perspective of Electronic Performance Monitoring (EPM), SI PENA is able to fulfill its purpose as a transparency instrument, strengthen target control through employee involvement in data input, and increase synchronicity by presenting reports in real time. However, there are still challenges in the invasiveness dimension, where some employees feel overly monitored, as well as constraints in the form of limited network infrastructure that hinders reporting in the field. In terms of work culture, this application has been proven to strengthen discipline, encourage openness, increase appreciation for individual contributions, and strengthen teamwork. This aligns with work culture theory, which emphasizes the importance of discipline, openness, mutual respect, and cooperation as the foundation of an effective organization. Thus, SI PENA serves not only as a monitoring tool but also as a catalyst for cultural change within the regional civil service. However, the successful implementation of this application depends heavily on adaptive supporting policies, efforts to reduce employee psychological resistance to supervision, and the provision of adequate digital infrastructure. Therefore, future optimization of the PENA Information System (SI PENA) requires an integrated strategy that encompasses technology, organizational culture, and leadership.

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