

# AI-Powered Healthcare Management: Rethinking Administrative Efficiency and Service Decisions

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| ARTICLE INFO                                                                                                                                                                                                                                                                                                                                                                                                       | ABSTRACT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <p><b>Keywords:</b><br/> <i>Artificial Intelligence, Public Health Management, Administration Efficiency, Decision Making, Human Oversight</i></p> <p><b>DOI:</b><br/>           10.22437/wk0xz107</p> <p><b>Received:</b><br/>           August 10<sup>th</sup>, 2026</p> <p><b>Reviewed:</b><br/>           August 13<sup>th</sup>, 2026</p> <p><b>Accepted:</b><br/>           August 22<sup>th</sup>, 2026</p> | <p><i>The utilization of Artificial Intelligence (AI) in healthcare services has emerged as a strategic approach to enhancing administrative efficiency and supporting service-related decision-making. However, its implementation also raises concerns regarding information accuracy, data security, human resource readiness, technological dependence, and decision accountability. This study aims to explore the role of AI in healthcare service management, particularly in improving administrative efficiency and supporting informed decision-making, while identifying challenges associated with its implementation. A qualitative approach with a descriptive-interpretive design was employed. Four participants comprising a hospital administrator, healthcare service manager, medical records officer, and health information systems staff member were selected through purposive sampling. Data were collected through semi-structured interviews and analyzed using reflexive thematic analysis. The credibility of the findings was enhanced through member checking, source triangulation, an audit trail, and researcher reflexivity. Three major themes emerged: (1) AI as a driver of administrative efficiency and service transformation; (2) AI as a support mechanism for information-based decision-making; and (3) implementation dilemmas involving human oversight and organizational readiness. The findings indicate that AI primarily functions as an augmentative technology that accelerates administrative processes and provides analytical support rather than fully replacing human judgment. Effective implementation requires AI output validation, digital competencies, robust data governance, information security, and clear accountability mechanisms. Generally, the study underscores the importance of human-AI collaboration in developing efficient, adaptive, and responsible healthcare service management.</i></p> |

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## **1. Introduction**

Digital transformation has fundamentally reshaped the ways in which healthcare organizations design, manage, and evaluate service delivery processes. Among the various emerging technologies, Artificial Intelligence (AI) is increasingly regarded as a strategic instrument due to its capacity to process large volumes of data, identify complex patterns, generate predictions, and provide recommendations to support human decision-making (Boden, 2016; Schank, 1987). Within the context of healthcare service management, the application of AI is no longer confined to diagnostic procedures or clinical interventions but has increasingly expanded into administrative activities, resource management, documentation, communication, and organizational decision-making. Recent scholarship highlights the growing role of AI in supporting decision-making across multiple dimensions of healthcare management. Manik (2026), for instance, demonstrates that AI has been incorporated into various forms of healthcare decision-making, encompassing clinical decisions, organizational decisions, and decisions involving multiple stakeholders. Similarly, research on nursing management indicates that AI can enhance resource allocation and management, risk assessment, communication, and the efficiency of administrative tasks (Rachmawati et al., 2024). These developments suggest that AI is increasingly positioned not merely as a technological support tool but as a strategic component of contemporary healthcare management. Accordingly, the integration of AI contributes to a broader transformation from conventional, procedure-driven approaches toward data-driven, predictive, adaptive, and responsive healthcare service management.

Recent scholarship highlights the growing role of AI in supporting decision-making across multiple dimensions of healthcare management. Manik (2026), for instance, demonstrates that AI has been incorporated into various forms of healthcare decision-making, encompassing clinical decisions, organizational decisions, and decisions involving multiple stakeholders. Similarly, research on nursing management indicates that AI can enhance resource allocation and management, risk assessment, communication, and the efficiency of administrative tasks (Rachmawati et al., 2024). These developments suggest that AI is increasingly positioned not merely as a technological support tool but as a strategic component of contemporary healthcare management. Accordingly, the integration of AI contributes to a broader transformation from conventional, procedure-driven approaches toward data-driven, predictive, adaptive, and responsive healthcare service management.

Although AI offers considerable potential to enhance efficiency in healthcare delivery, its implementation presents complex managerial dilemmas that cannot be addressed through technological solutions alone. Efficiency gains achieved through automation, for instance, do not necessarily translate into improved decision-making or higher-quality healthcare services. AI systems are highly dependent on the quality, completeness, representativeness, and integrity of the data on which they are trained and operated (Huda et al., 2026). At the same time, algorithmic outputs may be susceptible to bias, inaccuracies, or incomplete information. These challenges become particularly consequential when AI-generated recommendations are incorporated into decisions that have direct implications for patients and healthcare organizations. The Ministry of Health of the Republic of Indonesia and the World Health Organization (WHO) have highlighted several risks associated with the adoption of AI in healthcare, including excessive human reliance on automated systems, limited transparency and explainability of algorithmic decision-making, privacy and data-security concerns, and the potential generation of inaccurate or biased information. Accordingly, AI-supported decision-making should not be regarded as a substitute for human judgment but rather as a decision-support mechanism that requires continuous human oversight, clear organizational

accountability, and robust governance mechanisms to ensure safe, ethical, and responsible implementation (Kemenkes, 2026; WHO, 2024).

The dilemma is also evident at the operational level of healthcare service organizations. On the one hand, AI can reduce administrative burdens by automating documentation, summarizing medical records, processing information, and performing other routine tasks, thereby enabling healthcare professionals and managers to devote greater attention to strategically valuable activities (Amalia & Putri, 2026). The World Health Organization (WHO) has specifically identified administrative and clerical tasks—including documentation and the summarization of patient encounters in electronic health records—as among the potential areas for generative AI implementation (WHO, 2024). On the other hand, increasing automation raises critical questions about the extent to which administrative processes and decision-making can be delegated to algorithmic systems without undermining professional oversight, human agency, and accountability (Olawade et al., 2023). Thus, the central issue is not merely whether AI can enhance operational efficiency, but rather how healthcare organizations can ensure that technological advancement and automation remain aligned with accuracy, transparency, data security, professional autonomy, and accountability in the delivery of healthcare services.

From a management perspective, this issue demonstrates that the success of AI implementation cannot be assessed solely in terms of technical performance or the degree of automation achieved. Rather, AI implementation should be understood as a socio-technical process involving the interaction of technology, healthcare professionals, managers, organizational procedures, data infrastructures, and regulatory frameworks. Lelyana (2024) highlights the transformative potential of AI integration in healthcare management, particularly in enhancing service processes and operational effectiveness, while Dede et al. (2025) emphasize the contribution of AI to resource optimization and managerial functions. Nevertheless, the WHO (2024) underscores that the rapid advancement of AI technologies has outpaced the development of regulatory frameworks and implementation capacities in many contexts. This discrepancy makes the perspectives of organizational actors directly involved in healthcare delivery particularly important to examine, as their experiences, perceptions, adaptive strategies, and managerial considerations can reveal how AI actually functions within organizational practice, rather than merely how its potential is theoretically projected.

Against this backdrop, research on artificial intelligence in healthcare service management has become increasingly imperative, particularly for understanding the relationship between technological potential and the realities of implementation within healthcare organizations. Existing literature has provided substantial evidence of AI's capacity to support decision-making and improve operational efficiency; however, a more contextualized understanding is still needed regarding how organizational actors perceive and negotiate the benefits, limitations, risks, and transformations in work practices associated with AI adoption (Majida, 2026; Safrilina et al., 2025). Accordingly, this study focuses on exploring the role of artificial intelligence in enhancing administrative efficiency and supporting decision-making in healthcare services, while simultaneously identifying the dilemmas, challenges, and organizational conditions that shape its utilization. By adopting this perspective, the study is expected to provide empirical insights for developing healthcare management strategies that move beyond a technology-centered approach to adoption and instead integrate operational efficiency, service quality, human oversight, accountability, and responsible AI governance as interconnected dimensions of sustainable healthcare management.

## **2. Literature Review**

### **2.1 Healthcare Service Management**

Healthcare service management can be conceptualized as a systematic process of planning, organizing, coordinating, controlling, and evaluating organizational resources and service activities to achieve effectiveness, efficiency, service quality, and patient-centered outcomes (Calundu, 2018). From a management perspective, healthcare delivery should not be viewed merely as a collection of administrative procedures; rather, it constitutes an integrated system in which organizational resources, professional expertise, technological capabilities, and patient experiences converge to create value (Muller et al., 2006).

The rapid advancement of digital technologies has further expanded this concept toward data-driven healthcare service management, in which data serve as a strategic foundation for optimizing resource allocation, identifying service needs, improving operational processes, and supporting evidence-based organizational decision-making. Recent literature increasingly positions artificial intelligence (AI) as an integral component of healthcare service management infrastructure rather than merely as a tool for clinical applications. For instance, Ahmad et al. (2026) demonstrate that AI has considerable potential to transform managerial processes, enhance operational efficiency, improve responsiveness to service needs, and strengthen the overall quality of healthcare organizational management. More recent scholarship further suggests that the value generated by AI in healthcare services is increasingly determined not solely by its technological capabilities, but by the extent to which AI is effectively integrated into the broader healthcare ecosystem, organizational processes, and patient experience (Avianta et al., 2025).

### **2.2 Artificial Intelligence in Public Health Service**

Artificial intelligence (AI) refers to the capacity of computational systems to learn patterns from data and perform tasks that have traditionally required human cognitive abilities, including classification, prediction, recommendation, natural language processing, and information generation (Charniak, 1985). Within healthcare service management, AI can serve as a decision-support technology that enables organizations to process large volumes of data, automate administrative tasks, forecast resource requirements, and provide relevant information to support managerial and operational decision-making. Recent systematic evidence indicates that AI has been increasingly integrated into both clinical and administrative processes, with considerable potential to improve accuracy, operational efficiency, and timeliness across various dimensions of healthcare delivery (Irwan et al., 2025). Nevertheless, the implementation of AI in healthcare must extend beyond considerations of technological capability and efficiency. A responsible AI perspective emphasizes the importance of transparency, data security and privacy, fairness, accountability, and meaningful human oversight. The World Health Organization (WHO, 2024) similarly identifies effective governance, appropriate regulation, equity, safety, and the protection of individual rights as essential prerequisites for the responsible adoption of AI within health systems. Accordingly, in the present study, AI is conceptualized not as a substitute for healthcare professionals or organizational managers, but as an enabling technology that can augment human capabilities in processing information, supporting decision-making, and improving the effectiveness and quality of healthcare service management.

### **2.3 Administrative Efficiency**

Administrative efficiency in healthcare services refers to an organization's ability to perform administrative activities by optimizing the use of time, human resources, information, and other organizational resources without compromising the quality, accuracy, or timeliness of service

delivery (Marliani, 2018). This construct encompasses several dimensions, including the reduction of repetitive tasks, acceleration of information processing, effective documentation management, streamlined patient-flow coordination, and more appropriate allocation of organizational resources. Within the context of artificial intelligence (AI), administrative efficiency should not be assessed solely in terms of reduced working time; rather, it should also reflect the extent to which AI technologies can alleviate administrative workloads and enable healthcare professionals to devote greater attention to higher-value service activities. Previous research indicates that AI has considerable potential to enhance efficiency and timeliness in both administrative processes and healthcare delivery (Santoso et al., 2025), while Novita and Zahra (2024) identify operational efficiency as one of the significant outcomes of integrating AI into healthcare management. Nevertheless, administrative efficiency should be interpreted critically, as automation may also generate new forms of work, including the need to validate AI-generated outputs, monitor system performance, correct errors, and develop users' digital competencies. Accordingly, authentic administrative efficiency should be understood as a balanced outcome encompassing processing speed, accuracy, service quality, workload reduction, and the long-term sustainability of administrative processes.

## **2.4 Healthcare Service Decision-Making**

Healthcare service decision-making is a process of selecting appropriate courses of action based on available information, patient needs, organizational conditions, available resources, and professional judgment (Kirana et al., 2025). From a decision-support perspective, artificial intelligence (AI) can facilitate this process by providing processed information that enables decision-makers to identify patterns, generate predictions, evaluate alternative courses of action, and respond more efficiently to emerging healthcare conditions. Arifian (2025), through a systematic review of existing studies, demonstrated that AI has been increasingly applied to various forms of healthcare decision-making, including both clinical and organizational decisions. However, the integration of AI into healthcare decision-making also raises critical concerns, particularly regarding overreliance on algorithmic recommendations, whereby human decision-makers may accept system-generated recommendations without sufficient critical evaluation, as well as issues of explainability, particularly when the underlying rationale for an algorithmic recommendation is difficult for users to understand (Azahra & Fikri, 2026). Therefore, AI-supported decision-making should not be conceptualized as a process in which human judgment is replaced by automated systems. Rather, it is more appropriately understood through the framework of human–AI collaboration, in which AI provides analytical insights, predictions, and recommendations, while final decisions remain under human responsibility and professional accountability. In this context, the World Health Organization (WHO) emphasizes that the successful implementation of AI in healthcare depends substantially on effective governance, appropriate regulatory frameworks, high-quality and representative data, privacy protection, transparency, and clear mechanisms of accountability.

## **2.5 Research Synthesis**

The synthesis of the existing literature indicates a strong conceptual relationship among service management, artificial intelligence (AI), administrative efficiency, and decision-making. AI offers analytical capabilities and automation that can be integrated into service management processes, thereby facilitating faster administrative procedures while generating more relevant and timely information to support decision-making. Rahmawati et al. (2025) highlight the potential of AI to enhance efficiency and support administrative processes, while Arifian (2025) extends this perspective by emphasizing AI as a decision-support mechanism. Santoso et al. (2025), meanwhile, specifically examine the relationship between AI and

healthcare service management. Recent scholarship has increasingly shifted from asking “*What can AI do?*” toward the more critical question of “*How should AI be integrated into healthcare service ecosystems?*”, with growing attention to service experiences, organizational governance, human capabilities, and the broader organizational consequences of AI adoption.

Despite these developments, three significant research gaps remain. First, much of the existing literature focuses on the technical capabilities, perceived benefits, or performance outcomes of AI, while limited attention has been given to how AI is actually integrated into day-to-day service management practices. Second, administrative efficiency and decision-making are frequently examined as separate outcomes, even though they are closely interconnected in organizational practice. Changes in administrative processes can directly influence the quality, accessibility, and timeliness of information available for managerial and clinical decision-making. Third, the literature requires more context-sensitive empirical evidence concerning the experiences of organizational actors, particularly how managers and healthcare personnel balance the potential benefits of AI against risks related to algorithmic bias, excessive technological dependence, data privacy, and the continuing need for human oversight. These gaps are particularly important in the healthcare sector, where the rapid development of AI technologies has often outpaced the development of regulatory frameworks, institutional preparedness, and implementation capacity, as highlighted by the WHO (2024).

Against this background, the novelty of the present study lies in developing an integrated understanding of AI as a managerial technology that simultaneously shapes administrative efficiency and decision-making within healthcare service delivery. Rather than merely assessing whether AI improves efficiency, this study explores how, under what conditions, and through which organizational mechanisms AI-generated benefits emerge, as well as how healthcare personnel navigate the consequences and dilemmas associated with its adoption. A qualitative approach is particularly appropriate because it enables the study to capture actors’ experiences, interpretations, adaptive strategies, and forms of human–AI collaboration that cannot be fully explained through conventional quantitative performance indicators. Accordingly, this study conceptualizes AI within an AI-enabled healthcare management framework that brings together administrative transformation, decision-making processes, human capabilities, and technology governance. This perspective is consistent with the policy directions of the WHO (2024) and the Indonesian Ministry of Health (*Kementerian Kesehatan Republik Indonesia*, 2026), which emphasize that the impact of AI on healthcare services depends not only on technological capabilities but also on how AI is designed, governed, and meaningfully integrated into the broader healthcare service ecosystem.

Based on the theoretical synthesis and identified research gaps, this study is guided by the following research questions:

1. How is AI used and integrated into healthcare service management processes, particularly in administrative activities and information management?
2. How do healthcare service personnel perceive and interpret the role of AI in improving administrative efficiency and supporting service-related decision-making?
3. What challenges, dilemmas, and organizational strategies emerge from the use of AI for administrative processes and decision-making in healthcare service delivery?

### **3. Research Methodology**

#### **3.1 Research Design**

This study employed a qualitative approach using a phenomenological research design (Moustakas, 1994) to gain an in-depth understanding of the role of artificial intelligence (AI) in healthcare service management, particularly in enhancing administrative efficiency and

supporting service-related decision-making. A phenomenological approach was considered appropriate because the phenomenon under investigation is complex and context-dependent; therefore, understanding the implementation of AI cannot be adequately captured through the measurement of performance indicators alone. Instead, it requires an exploration of the lived experiences, perceptions, practices, and considerations of the stakeholders directly involved in its implementation. The research was designed to examine how AI is integrated into organizational workflows, the changes experienced in administrative activities, its contribution to the provision of information for decision-making, and the various challenges and dilemmas associated with its use, including concerns regarding accuracy, technological dependence, data security, and the need for effective human oversight. The conduct and reporting of the study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) (Tong et al., 2007), which emphasizes transparency in reporting the research design, participant characteristics, data collection procedures, data analysis, researcher reflexivity, and the presentation of findings.

### 3.2 Participants

The study was conducted at a healthcare service facility in Pasuruan, East Java, Indonesia, which serves as an organizational context where administrative and healthcare delivery functions are integrated. Participants were selected using purposive sampling based on several predetermined criteria: (1) direct involvement in healthcare administration or service management; (2) prior experience using, interacting with, or managing digital or artificial intelligence (AI)-based systems in their professional activities; and (3) willingness to provide in-depth information regarding their experiences with the use of such technologies. To ensure diversity of perspectives, participants were recruited from various organizational functions, including management and administrative personnel, healthcare professionals, and staff responsible for data management and information systems.

The number of participants was determined iteratively based on the richness and adequacy of the information obtained rather than on a predetermined numerical target. Participant recruitment continued until additional interviews no longer generated substantively new information relevant to the research focus. This approach enabled the study to capture variations in perspectives across organizational roles while maintaining the depth and richness of data that are central to qualitative inquiry.

Table 1: Participants' Demography

| Participants' Code | Position                          | Gender | Work Experiences |
|--------------------|-----------------------------------|--------|------------------|
| P1                 | Hospital Administrator            | Female | 12 Years         |
| P2                 | Health Service Manager            | Male   | 15 Years         |
| P3                 | Medical Record Staff              | Female | 8 Years          |
| P4                 | Health Information System Officer | Male   | 10 Years         |

*Source : Processed Data, 2026.*

### 3.3 Instruments

The primary data were collected through in-depth semi-structured interviews (Adams, 2015), guided by an interview protocol developed based on the study's conceptual constructs, namely healthcare service management, artificial intelligence utilization, administrative efficiency, and service decision-making. The interview questions were open-ended and explored several key dimensions, including the forms and purposes of AI utilization; changes

in administrative processes; perceptions of time and resource efficiency; the contribution of AI to the availability, accessibility, and interpretation of information; experiences with incorporating AI-generated recommendations into service-related decision-making; and challenges associated with accuracy, privacy, transparency, potential overreliance on automated systems, and human accountability. Interviews were conducted either face-to-face or through online platforms, depending on the participants' circumstances and preferences, with each session lasting approximately 30–60 minutes. With participants' informed consent, all interviews were audio-recorded and subsequently transcribed verbatim to ensure the accuracy and completeness of the data.

To complement the interview data, relevant organizational documents were examined when available and authorized for access, including administrative procedures, guidelines for the use of digital systems, and documents related to technology implementation. These documentary sources were used to contextualize and corroborate information obtained from the interviews. The integration of multiple data sources enabled data triangulation, thereby enhancing the credibility, contextual depth, and interpretive rigor of the findings.

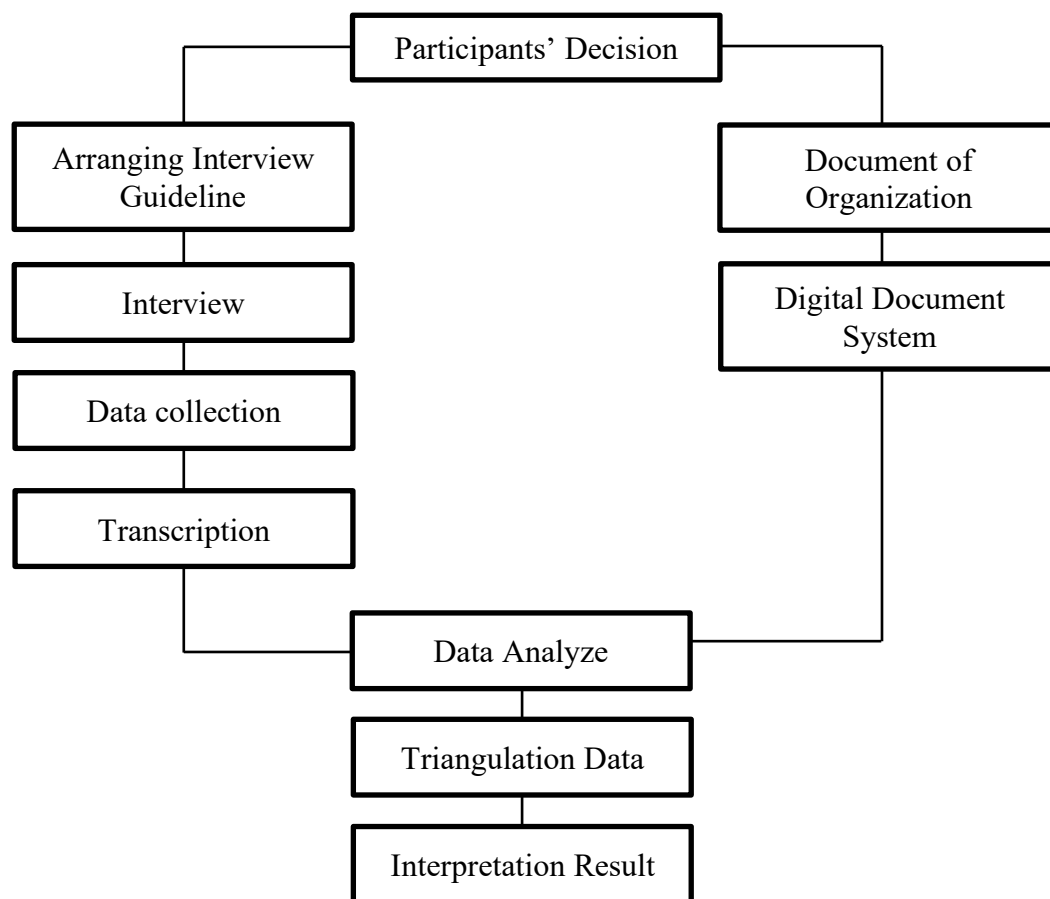


Figure 1. Data Collection Process

### 3.4 Data Analysis and Trustworthiness

The data were analyzed using reflexive thematic analysis following Joffe (2012), encompassing six iterative stages: data familiarization, initial coding, generation of potential themes, review of themes, definition and naming of themes, and the development of the final interpretation. The analysis employed both inductive and deductive approaches. Inductive coding was used to identify experiences, meanings, and patterns emerging directly from the

data, while theoretically informed constructs, such as administrative efficiency, decision-making, human–artificial intelligence (AI) collaboration, and AI governance, served as sensitizing concepts to facilitate the interpretation of emerging patterns. All interview transcripts were read repeatedly to ensure comprehensive engagement with the dataset. Relevant segments were systematically coded, conceptually similar codes were subsequently clustered, and these clusters were refined into overarching themes and subthemes that elucidated the relationships among AI adoption, administrative transformation, decision-making processes, and organizational dilemmas.

To establish the trustworthiness of the findings, the study adopted four criteria proposed by Lincoln and Guba (1982), credibility, transferability, dependability, and confirmability. Credibility was enhanced through member checking, triangulation across data sources, and peer debriefing of the coding and interpretive processes. Transferability was supported by providing rich and contextualized descriptions of the organizational setting and participant characteristics, enabling readers to assess the applicability of the findings to comparable contexts. Dependability was strengthened through systematic documentation of the research procedures and analytical decisions, maintained as an audit trail throughout the study. Confirmability was addressed through the use of a reflexive journal, documentation of analytical decisions, and systematic tracing of interpretations back to the empirical data. Collectively, these procedures enhanced the methodological rigor of the study by ensuring that the findings were grounded in participants' experiences and narratives rather than being driven primarily by the researchers' assumptions or preconceived interpretations.

#### **4. Findings**

The semi-structured interviews with four participants yielded three overarching themes: (1) AI as a driver of administrative service efficiency and transformation; (2) AI as a support mechanism for information-based decision-making; and (3) the implementation dilemmas surrounding AI, human oversight, and organizational readiness. Collectively, these themes demonstrate that AI adoption extends beyond the technical dimension of work, generating broader changes in work practices, the distribution of responsibilities, and the ways organizational actors interpret information and make decisions. These findings were derived through an iterative process of identifying and grouping recurring codes emerging from the narratives of P1–P4, which were subsequently synthesized in accordance with the study's research focus.

##### **4.1. AI as a driver of administrative service efficiency and transformation**

The participants generally characterized AI as a technology that facilitates administrative efficiency, particularly in tasks that are routine and repetitive. AI-based digital systems were perceived as capable of reducing the amount of time previously required for record-keeping, information retrieval, document preparation, and data processing. P1 explained that the most tangible benefit was not merely a reduction in workload, but rather a reallocation of working time:

“.... if repetitive tasks can be assisted by the system, we do not have to spend as much time typing or searching for data one by one. That time can then be used for other, more important tasks.” (P1)

This statement indicates that efficiency was understood as the capacity of technology to reduce administrative burdens while enabling staff to redirect their attention toward service-related activities that require human judgment and consideration.

A similar perspective was expressed by P3, who emphasized that AI-supported systems facilitate faster and more structured information management:

“In the past, searching for or matching particular data could take quite a long time. Now, the system helps display the required information more quickly. However, it still needs to be checked because the system can also make mistakes, ...” (P3)

Beyond saving time, AI was also perceived as reducing repetitive tasks that may contribute to administrative fatigue. P2 explained:

“When the same tasks have to be performed repeatedly, they can make us tired more quickly and sometimes less attentive. With the assistance of the system, some of these tasks can be reduced. We only need to check the results and make corrections if something is incomplete.” (P2)

This statement suggests a transition from a work pattern primarily oriented toward manual data processing to one that places greater emphasis on verification and oversight. Thus, AI does not completely eliminate human involvement; rather, it transforms the nature of such involvement from executing routine tasks to reviewing, monitoring, and controlling system-generated outputs. This shift is particularly significant in the context of service management because administrative efficiency should not be understood merely in terms of reducing the volume of work, but also in terms of transforming the nature and distribution of tasks performed by administrative personnel.

Participants also identified AI's contribution to minimizing potential administrative errors. P1 stated:

“When records are maintained manually, sometimes data can be overlooked or entered incorrectly. The system helps reduce these kinds of errors, particularly when a large volume of data needs to be processed.” (P1)

Nevertheless, P1 emphasized that AI-generated outputs should not be regarded as inherently accurate:

“It still has to be checked because if the initial input is incorrect, the results produced by the system can also be incorrect, ...” (P1)

This observation demonstrates that the efficiency generated by AI is closely associated with data quality and human validation. Although AI can enhance consistency and reduce errors arising from repetitive administrative processes, it does not eliminate the possibility of error altogether. Accordingly, administrative efficiency from the participants' perspective is more appropriately conceptualized as a combination of automation, standardization, and human oversight.

Another notable transformation concerned improved coordination and information connectivity across organizational units. P4 explained:

“... when information is already available in the system, other departments do not always need to request the data manually. They can access information within their respective areas of authority. This helps improve coordination because the process becomes faster.” (P4)

P2 similarly noted:

“When information is available more quickly, communication between departments becomes easier. ... We can understand the current service situation without having to wait too long for manual reports. ...” (P2)

These findings indicate that AI and digital systems operate not only at the individual level but also have broader implications for organizational workflows. More timely access to information enables coordination processes to become more responsive and can reduce delays associated with the manual transfer of documents and information. In this respect, AI-supported administrative systems contribute to organizational efficiency by facilitating information accessibility, accelerating interdepartmental communication, and supporting more timely service coordination.

However, participants did not perceive AI-driven efficiency as an entirely consequence-free process. P3 explained that the adoption of AI also generates new responsibilities for users:

“It is indeed faster now, but we also need to know how to check the results. We should not simply assume that everything is correct just because the system is automated.” (P3)

This perspective was reinforced by P2:

“Manual work has been reduced, but the task of checking the system's results remains. So, it does not mean that we no longer need to work after using AI.” (P2)

These findings reveal an efficiency paradox in AI-supported administration. While AI reduces certain forms of routine administrative work, it simultaneously generates new demands for verification, monitoring, quality control, and corrective intervention. Administrative transformation, therefore, should not be interpreted simply as a reduction in workload. Rather, it represents a redistribution and reconfiguration of administrative labor, whereby effort is shifted from manual data processing toward the supervision, validation, and quality assurance of AI-assisted outputs. This finding underscores the continuing importance of human agency and professional judgment in ensuring that technological efficiency translates into reliable and accountable service delivery.

#### **4.2. AI as a support mechanism for information-based decision-making**

The second theme demonstrates that participants perceived AI as a supportive instrument that strengthens decision-making processes by providing information in a faster, more structured, and more interpretable manner. Rather than viewing AI as an autonomous decision-maker, participants regarded it as a system that helps reduce the complexity of information that managers must process in healthcare service settings. P2 explained that before the implementation of more automated systems, decision-making processes often required staff to search for, consolidate, and interpret information from multiple sources. As P2 stated:

“When there is a large amount of data, we sometimes have difficulty seeing the bigger picture. With the support of the system, large amounts of data can be summarized, making it easier to identify which issues are problematic and which ones require immediate attention.” (P2)

This statement indicates that the function of AI extends beyond improving processing speed; it also contributes to reducing the informational complexity encountered by decision-makers. By summarizing and organizing large volumes of data, AI enables managers to identify priorities more efficiently and develop a more comprehensive understanding of emerging issues.

P4 provided a more specific perspective on the capacity of AI to identify patterns within healthcare service data. According to P4, the system can provide preliminary information about conditions that require managerial attention. P4 explained:

“What I have experienced is that the system helps identify patterns that are not always immediately visible when we examine the data individually. From there, we can determine whether the issue requires further action.” (P4)

This finding suggests that AI plays an important role in information processing and pattern recognition, thereby reducing decision-makers’ dependence on entirely manual analytical processes. Consequently, the implementation of AI has the potential to shift decision-making practices from predominantly reactive approaches toward more data-driven and proactive forms of managerial decision-making.

In addition to accelerating information processing, AI was perceived as contributing to the timeliness of decision-making. P1 explained that certain administrative decisions previously required considerable time because staff had to collect and verify information manually. As P1 stated:

“When the required information is already available and the system can help process it, decisions can be made more quickly. There is no need to wait until all the data have been collected manually.” (P1)

This increased efficiency was considered particularly important when management needed to respond promptly to service-related issues requiring immediate action. Nevertheless, P1 emphasized that efficiency should not come at the expense of verification:

“Speed is certainly important, but we should not immediately trust the system’s results simply because we want to act quickly. We still need to examine whether the information is accurate and consistent with the actual conditions in the field.” (P1)

This finding highlights a critical tension between decision-making speed and informational accuracy, which represents an important consideration in the implementation of AI within healthcare service organizations. Although AI can accelerate the availability and processing of information, the speed of automated outputs must remain balanced with appropriate verification and professional judgment.

The findings further indicate that participants implemented human validation processes before AI-generated information or recommendations were incorporated into decision-making. P3 explained:

“Usually, we treat the system’s output as preliminary information. After that, we check it against the available data and the actual conditions. If everything is consistent, then the information is used to determine the next course of action.” (P3)

This practice demonstrates that AI is positioned primarily as a decision-support system, while human actors retain the authority to interpret information and determine appropriate actions. In practice, decision-making occurs through a sequence of interconnected stages: the system generates or organizes information, users evaluate the output, and decision-makers contextualize the information within organizational circumstances before determining an appropriate course of action. This finding reinforces the importance of human–AI collaboration, in which AI’s computational and analytical capabilities are combined with human contextual knowledge, professional expertise, and judgment.

P2 further emphasized that AI-generated recommendations cannot always be applied directly because healthcare service environments are dynamic and context-dependent:

“The system can provide recommendations based on the available data, but conditions in the field are not always the same as those represented in the data. Therefore, we still need to examine the actual situation before making a decision.” (P2)

This statement highlights an inherent limitation of algorithmic decision-making, particularly when qualitative, contextual, or situational information is not fully represented within the underlying datasets. Consequently, professional experience and contextual knowledge remain essential components of decision-making. AI provides analytical and informational support, whereas human decision-makers contribute contextual interpretation and professional judgment. The integration of these two dimensions enables decision-making to remain responsive to the realities of healthcare service delivery rather than being determined solely by algorithmic outputs.

Another important finding concerns the transformation of managerial work practices from experience-based decision-making toward more evidence-informed and data-driven approaches. P4 stated:

“Experience remains important, but decisions are no longer based solely on what we feel or on previous experience. There is data that can provide a stronger basis for those decisions.” (P4)

This statement suggests that AI has the potential to transform the epistemological foundations of organizational decision-making in healthcare services. Professional knowledge that was previously grounded heavily in experience, intuition, and accumulated practical judgment is increasingly complemented by data-derived information processed through technological systems. Importantly, this transformation does not imply the elimination of professional experience. Rather, it represents the emergence of a more integrated decision-making model in which empirical data, technological recommendations, professional expertise, and organizational context collectively inform managerial decisions.

Despite these perceived benefits, participants also recognized the potential risks associated with excessive reliance on AI-generated recommendations. P3 expressed concern about overdependence on automated outputs:

“If we become too dependent on AI, we are also concerned when the system produces inaccurate results. Users still need to understand why a decision is being made rather than simply following what appears on the screen.” (P3)

This perspective reflects participants’ awareness of the risks of automation bias, particularly the tendency to accept automated recommendations without sufficient critical evaluation. P1 further emphasized that users need to develop the capacity to critically assess AI-generated information:

“In my view, what matters is not only being able to use AI, but also knowing when its results can be trusted and when they need to be checked again.” (P1)

Accordingly, the adoption of AI creates new competency requirements for organizational staff, particularly in relation to information evaluation, critical judgment, understanding system limitations, and determining when human intervention is necessary. Overall, the findings demonstrate that AI functions most effectively not as a substitute for managerial decision-making but as an augmented decision-support mechanism. Its value lies in enhancing

information accessibility, identifying patterns, accelerating analytical processes, and strengthening evidence-informed decisions, while human actors remain responsible for validation, contextual interpretation, and final decision-making. This human-centered configuration suggests that the effectiveness of AI implementation in healthcare organizations depends not merely on technological capability but also on users' capacity to critically evaluate, contextualize, and appropriately integrate AI-generated information into professional decision-making.

#### **4.3. AI as a support mechanism for information-based decision-making**

The findings indicate that the implementation of artificial intelligence (AI) in healthcare service management is not perceived as an entirely unproblematic process of organizational transformation. Although participants acknowledged AI's capacity to accelerate work processes and facilitate information management, they simultaneously identified several risks that require systematic organizational control. One of the most frequently raised concerns was excessive reliance on AI-generated outputs. P1 explained that the use of AI could become problematic when staff place excessive trust in system-generated information without conducting further verification:

“If we rely too much on the results generated by the system, that can also be dangerous. The system is helpful, but the results still need to be checked because we do not know whether the data entered into the system are actually correct.” (P1)

This statement suggests that the efficiency gained through automation is accompanied by an increased need for consistent verification mechanisms. Rather than eliminating human involvement, AI implementation appears to shift human roles toward monitoring, validation, and critical evaluation of machine-generated outputs.

Concerns regarding accuracy also emerged as a central issue among participants, particularly because the quality of AI-generated outputs is highly dependent on the quality, completeness, and reliability of the underlying data. P3 emphasized:

“AI works based on data. If the data are incomplete or there are errors from the beginning, the results provided may also be inaccurate. Therefore, we should not assume that because we use AI, the results are automatically correct.” (P3)

This perspective demonstrates participants' awareness that AI should not be regarded as an inherently objective or error-free technological system. In healthcare service management, inaccurate information may have implications not only for administrative processes but also for decisions related to service delivery. Consequently, participants viewed data validation as an indispensable component of AI implementation. P2 further explained:

“We still need to examine the data sources and the actual conditions in the field. The results generated by the system can be used as a consideration, but they cannot immediately be regarded as the final decision.” (P2)

This finding highlights the importance of data governance in determining the reliability and responsible use of AI within healthcare service environments. The usefulness of AI is therefore closely associated with the organization's capacity to ensure data quality, traceability, and contextual validity before AI-generated outputs are incorporated into managerial or service-related decisions.

Beyond concerns regarding accuracy, the findings also reveal apprehension about automation bias, namely the tendency of users to accept technological recommendations without sufficiently questioning or critically evaluating them. P4 stated:

“If AI-generated results are always considered correct, people may eventually become reluctant to conduct their own checks. However, service-related decisions cannot be based solely on what the system produces.” (P4)

This statement illustrates how AI adoption may influence patterns of human decision-making when adequate oversight mechanisms are absent. In this context, human oversight extends beyond the technical verification of AI outputs. It also functions as an institutional mechanism for maintaining professional judgment, contextual interpretation, ethical consideration, and human accountability. P1 reinforced this position:

“AI may provide recommendations, but the decision should still be made by the person. Especially when the decision concerns service delivery, there must be other considerations that the system may not be able to recognize.” (P1)

Accordingly, the findings suggest that the relationship between humans and AI is more appropriately conceptualized as complementary collaboration rather than the transfer of decision-making authority from humans to machines. AI serves primarily as a decision-support mechanism, while ultimate authority and responsibility remain with human actors who are able to incorporate contextual, professional, and ethical considerations that may not be captured by algorithmic systems.

Another important finding concerns the readiness of human resources to adopt and effectively utilize AI technologies. Participants indicated that employees possess different levels of understanding, technological familiarity, and confidence in using AI-based systems. P3 noted:

“Not everyone can immediately use a new system. Some people understand it quickly, while others need guidance. Without training, technology that is actually beneficial may not be utilized to its full potential.” (P3)

This condition indicates that successful AI-driven transformation requires more than technological investment; it also requires sustained investment in employees’ digital competencies and adaptive capabilities. The effectiveness of AI implementation is consequently dependent not only on whether an organization possesses appropriate technological infrastructure but also on whether its employees are sufficiently prepared to integrate such technologies into everyday work practices.

P2 further emphasized that organizational training should extend beyond basic technical operation:

“In my opinion, training is important, not only in terms of how to use the system but also how to interpret its results. People need to understand when AI-generated results can be used and when they need to be reviewed again.” (P2)

This finding suggests that AI competency should not be narrowly defined as the ability to operate AI-enabled technologies. Rather, it encompasses AI literacy, critical evaluation, information interpretation, awareness of system limitations, and the ability to determine when human verification is required. Such competencies are particularly important in healthcare service management, where technological outputs may influence processes involving sensitive information and service quality.

From a managerial perspective, participants also identified data security and confidentiality as critical dilemmas associated with AI adoption. Healthcare information is highly sensitive, and its use within AI-enabled systems requires robust controls over data access, storage, processing, and monitoring. P4 explained:

“When using AI for service-related data, data security is actually the most important issue. We should not allow the desire to make work faster to result in patient data being exposed or used without clear controls.” (P4)

This concern demonstrates that technological efficiency cannot be separated from an organization’s responsibility to protect patient information. AI implementation therefore requires explicit organizational boundaries concerning the types of data that may be processed, the individuals authorized to access such data, the purposes for which the data may be used, and the mechanisms through which data utilization is monitored. In this regard, responsible AI adoption requires the integration of technological innovation with organizational data protection practices.

Participants further highlighted the ambiguity of responsibility in cases of AI-related errors as another unresolved dilemma. P1 stated:

“If an error occurs, we cannot simply say that AI is at fault. There still has to be a person who is responsible because AI is only a tool used in the work process.” (P1)

This view was reinforced by P2:

“It must be clear who is responsible for checking the results and who makes the final decision. If responsibility is unclear, the use of AI could create new problems.” (P2)

These statements underscore the importance of algorithmic accountability, particularly the need to establish clear responsibility for the use, interpretation, validation, and consequences of AI-generated outputs. In healthcare service management, accountability becomes particularly significant because AI-supported decisions may directly or indirectly affect service quality, organizational performance, and patient interests. Thus, AI should not be positioned as an autonomous decision-maker capable of assuming responsibility for organizational outcomes. Instead, accountability must remain embedded within clearly defined human and institutional structures.

In addition to internal organizational challenges, the findings reveal a mismatch between the rapid development of AI technologies and organizational readiness. P4 observed:

“Technology is developing very rapidly, but organizational regulations and practices cannot always keep pace. Sometimes we have already adopted the technology, but the SOPs have not been properly adjusted.” (P4)

This statement indicates the existence of an organizational readiness gap in AI implementation. Providing AI technologies alone is insufficient to ensure successful digital transformation. Organizations must simultaneously develop appropriate standard operating procedures (SOPs), evaluation standards, monitoring mechanisms, governance structures, and clearly defined responsibilities that correspond to the characteristics and risks of AI-enabled processes.

P3 further explained:

“If the system changes but the SOPs and employees’ ways of working do not change, people will eventually use AI merely as an additional tool rather than as an integrated part of the work process.” (P3)

Taken together, these findings demonstrate that AI implementation in healthcare service management involves a complex interplay between technological capability, human judgment, employee competence, data governance, security, accountability, and organizational readiness. The central dilemma is therefore not whether AI should replace human involvement, but how organizations can establish an appropriate human–AI governance framework in which technological efficiency is balanced with human oversight, professional responsibility, ethical considerations, and institutional accountability. AI adoption can generate meaningful managerial benefits only when technological implementation is accompanied by adequate employee preparation, robust data governance, clear accountability structures, and organizational procedures capable of evolving alongside technological change.

## **5. Discussion**

The findings indicate that artificial intelligence (AI) primarily functions as an augmentative technology that strengthens rather than replaces human capabilities in healthcare service management. Participants identified the most tangible benefits of AI in accelerating administrative tasks, processing information, and providing supporting evidence for service-related decision-making. These findings are consistent with Arifian (2025), who demonstrated that AI can support organizational decision-making through administrative forecasting, time management, and resource optimization. Similarly, Santoso et al. (2025) found that AI can assist healthcare managers in resource management, communication, decision-making, and the optimization of administrative tasks.

However, the present findings provide a more critical perspective on overly optimistic assumptions regarding AI-driven efficiency. For P1–P4, efficiency does not equate to full automation. Although AI reduces the burden of routine tasks, it simultaneously creates a need to review, interpret, and validate system-generated outputs. AI therefore produces a redistribution of workload rather than a simple elimination of workload. This finding is particularly important because it suggests that the success of AI implementation in healthcare management should not be assessed solely in terms of processing speed or resource savings. Instead, evaluation should also incorporate the quality of verification processes, information accuracy, and the extent to which professional capacity is maintained or strengthened following technological adoption.

With regard to decision-making, the findings demonstrate that AI is primarily positioned as a decision-support system, while ultimate decision-making authority remains with human professionals. This finding supports Khosravi et al. (2024), who identified organizational decision-making as one of the major domains of AI application in healthcare. Existing literature further suggests that AI can provide information more rapidly, accurately, and in a more personalized manner, thereby potentially improving the quality and effectiveness of decision-making (Kurnia et al., 2026). Nevertheless, the present study highlights an important counterpoint: the greater AI's capacity to generate recommendations, the greater the need for critical human judgment. Participants' concerns regarding the tendency to accept AI-generated outputs without adequate verification are consistent with broader discussions of automation bias and the limitations of human oversight. Moreover, recent systematic evidence indicates that the benefits of AI-assisted healthcare decision-making do not always correspond with demonstrated improvements in patient outcomes, while uncertainties regarding potential risks and unintended consequences remain (Levy et al., 2021; Yulia, 2025). Accordingly, this study

does not support the assumption that improved information quality automatically translates into improved decision quality. Rather, decision quality emerges from the interaction of AI's analytical capabilities, data quality, user competence, organizational context, and professional judgment (Hidayat et al., 2024; Kurnia et al., 2026; Simanullang & Manalu, 2026).

The most critical findings concern human oversight, data accuracy, information security, and accountability. Participants consistently emphasized that errors generated by AI cannot be attributed solely to the technology because decisions continue to be made within an organizational structure of professional responsibility. This finding is consistent with Husain et al. (2026), who identified privacy, accountability, fairness, autonomy, and regulatory risks as major challenges in the implementation of AI in healthcare. Nevertheless, the present study extends this discussion by demonstrating that human oversight is not, in itself, a straightforward solution. Effective oversight requires digital competence, sufficient time, an understanding of algorithmic limitations, and the institutional authority to reject or modify AI-generated recommendations. Hardisman (2025) further argues that human oversight may generate additional professional burdens when healthcare personnel are required to continuously monitor, verify, and correct AI-generated outputs. This creates an important technological paradox: AI is introduced to enhance efficiency, yet poorly designed oversight mechanisms may inadvertently generate additional work. The findings regarding human-resource readiness are also consistent with Sengkey et al. (2025), who identified a positive relationship between healthcare workers' readiness to use AI and organizational openness to change. Organizational readiness, therefore, should not be reduced to the availability of technological infrastructure; it should also encompass professional competencies, organizational culture, standard operating procedures, data governance, and clearly defined responsibilities.

Taken together, the findings suggest that the managerial value of AI lies not in its capacity to replace human professionals but in the quality of the working relationship among humans, algorithms, and organizational systems. This perspective brings together two positions in the existing literature: the first emphasizes AI as an instrument for operational efficiency and optimization, whereas the second highlights the ethical, epistemic, and organizational risks associated with excessive reliance on algorithms. Santoso et al. (2025), for example, demonstrate the broad potential of AI to transform healthcare management, whereas studies addressing organizational readiness and human oversight indicate that such benefits are highly contingent upon implementation conditions. The contribution of the present study lies in connecting these two perspectives through the experiences of organizational actors. Administrative efficiency and decision-support capabilities can be sustained only when organizations are able to maintain an appropriate balance between automation and human control. Accordingly, the managerial implication of this study is not simply to encourage AI adoption, but to establish an implementation framework encompassing AI literacy, systematic output validation, data governance, standard operating procedures for AI use, meaningful human involvement in decision-making, and explicit accountability mechanisms (Fajar, 2025). Such an approach is more consistent with the realities of organizational transformation than a purely technology-driven paradigm because it positions AI as a component of strategic, ethical, and sustainable organizational change.

## **6. Conclusion**

This study demonstrates that artificial intelligence (AI) plays a strategic role in healthcare service management, particularly by enhancing administrative efficiency, information management, and decision-making support. In response to the first research question, AI has been integrated into various administrative activities, including record keeping, data processing,

documentation, information retrieval, and interdepartmental coordination. This integration has gradually shifted organizational work practices from predominantly manual processing toward the verification, interpretation, and supervision of system-generated outputs. Regarding the second research question, AI is perceived as having the capacity to reduce repetitive tasks, accelerate access to relevant information, simplify complex datasets, identify patterns, and generate recommendations that support service-related decision-making. Nevertheless, AI does not replace human authority or professional judgment. Decision-making continues to require contextual interpretation, professional expertise, and consideration of situational factors that cannot be fully captured by automated systems. Accordingly, the findings suggest that the use of AI in this context is more appropriately conceptualized as human–AI collaborative decision-making rather than fully automated decision-making.

In response to the third research question, the implementation of AI presents several challenges, including system dependency, data quality and accuracy, automation-induced bias, healthcare data security and privacy, limited digital competencies, ambiguity regarding accountability, and the gap between technological advancement and organizational readiness. These findings reveal an efficiency paradox, whereby the reduction of routine workloads is accompanied by an increasing need for human validation, correction, monitoring, and oversight of AI-generated outputs. Therefore, healthcare service organizations should strengthen AI literacy among personnel, enhance data governance mechanisms, establish clear standard operating procedures for AI use, ensure meaningful human involvement throughout critical decision-making processes, and define explicit roles and responsibilities for AI-supported activities. Future research should expand the scope and number of healthcare organizations examined and employ mixed-methods or longitudinal designs to further investigate the relationships between AI adoption, operational efficiency, decision-making quality, and organizational readiness. Future studies should also incorporate the perspectives of patients and other relevant stakeholders to develop a more comprehensive understanding of the implications of AI implementation in healthcare service management. Furthermore, subsequent research could develop and empirically test a human–AI collaboration model for healthcare service management that integrates operational efficiency, decision-making quality, organizational readiness, data governance, and accountability. Such a model could provide a more comprehensive framework for ensuring that AI adoption not only improves organizational performance but also maintains professional responsibility, contextual decision-making, and responsible governance.

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