

# Application of Technology in Health Administration: Perspectives of Hospital Administrative Staff in a Qualitative Context

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#### ABSTRACT

This study aims to analyze the responses of administrative staff towards the implementation of the Hospital Management Information System (SIMRS) as part of the digital transformation in the healthcare sector. Using a descriptive qualitative approach, this research explores the experiences, perceptions, and challenges faced by staff in using information technology in hospital administrative activities. The findings indicate that the success of SIMRS implementation is heavily influenced by individual factors such as technological skills, age, and work experience, as well as organizational support such as adequate training and infrastructure. Although most staff recognize the benefits of efficiency and data accuracy offered by the technology, barriers such as resistance to change and limitations in facilities remain key challenges. This study provides valuable insights for hospital management in designing more effective technology implementation strategies that are user-centered.

**Keywords**: Digital Transformation, Hospital Management Information System (HMIS), Administrative Staff, Technology Acceptance

#### INTRODUCTION

The development of information technology has brought about significant changes across various sectors, including healthcare. Digital transformation in healthcare is evident through the implementation of hospital information systems (SIRS), electronic medical records (EMR), e-prescribing systems, and automated billing systems. These innovations aim not only to improve service efficiency but also to enhance data accuracy and the quality of healthcare administration. In the era of digitization, many hospitals are competing to implement technology-based systems to expedite workflows and enhance patient care quality.

In the operational context of hospitals, administrative staff play a role that is just as crucial as that of medical personnel. They are responsible for managing patient registration, organizing documents, handling insurance claims, and conducting financial reporting. The shift from manual systems to digital systems undoubtedly has a significant impact on their work patterns. Adaptation to technology becomes essential for the smooth functioning of the service system. Therefore, understanding how administrative staff cope with digital transformation is crucial.

However, the implementation of technology is not always smooth. There are several challenges often faced by administrative staff, such as inadequate training, limited infrastructure, and technical issues like frequent system disruptions or confusing user interface designs. These situations can affect performance, productivity, and even job satisfaction. Additionally, resistance to technological change may arise, especially when technology is seen as complicating tasks or adding to the workload. Hence, understanding the perceptions and subjective experiences of administrative staff is extremely important. Technology is not just about hardware and software; it's also about how end users interpret the role of technology in their work context. The perspectives of the staff can provide insight into whether the implementation of technology truly facilitates their tasks or instead adds more challenges to their daily duties.

The application of technology in health administration has been explored from various perspectives. Hospital staff members have diverse viewpoints on health technology assessment (HTA), with clinical aspects generally considered most important (Tal et al., 2019). Senior health managers in private hospitals recognize the importance of HTA but often have limited knowledge about its applications (Erişen & Yilmaz, 2020). The adoption of Hospital Administration Management Technology (HAMT) is influenced by factors such as perceived usefulness, ease of use, and subjective norms (Seth et al., 2019). Implementation of health technologies in hospitals is affected by contextual factors including infrastructure, human resource management, financial resources, and leadership styles (Grossi et al., 2021). While guidance exists on technology implementation, there is a gap in literature regarding hospitals' awareness of actual technology utilization, particularly for medical and surgical technologies (Grossi et al., 2021). Unfortunately, most studies related to the implementation of technology in hospitals still focus on the technical and managerial aspects, while the personal experiences of administrative staff have not been deeply explored. This is where the qualitative approach becomes relevant and important. With this method, researchers can delve into the narratives, viewpoints, and reflections of staff regarding the use of technology in their work lives.

The goal of this research is to deeply understand how hospital administrative staff interpret and respond to the implementation of technology in their work environment. This study aims to explore the experiences, perceptions, and challenges faced by staff in using digital systems in hospital administrative activities. Through a qualitative approach, this research also seeks to identify the factors that support or hinder the technology adaptation process from the perspective of direct users. The results of this study are expected to provide new insights for policymakers and hospital managers in designing more effective, inclusive, and user-oriented technology implementation.

#### **METHODS**

This study uses a descriptive qualitative approach, which aims to explore and understand the meaning, experiences, and subjective perceptions of hospital administrative staff regarding the implementation of information technology in their daily administrative tasks. This approach was chosen because it allows the researcher to capture the social reality from the participants' perspectives, providing a deep insight into how technology affects their work processes and adaptation within the healthcare institution context.

The subjects of this study are hospital administrative staff who are directly involved in the use of digital technologies such as the Hospital Information System (HIS), patient registration applications, billing systems, and electronic medical records. Participants are selected using purposive sampling, which is a selection technique based on specific criteria. These criteria include: having worked for at least one year, having experience using hospital information technology systems, and being willing and able to provide in-depth information about their experiences.

This research is conducted in one or more hospitals, either public or private, that have implemented digital information systems in administrative management. The location is chosen strategically based on the ongoing implementation of technology and the accessibility of participants who meet the criteria.

The primary data collection technique is in-depth interviews conducted semistructurally. This approach provides flexibility in exploring topics that arise during the conversation, while staying focused on the main research objectives. The interviews are conducted in person, with data recorded using audio recordings and field notes to ensure the integrity and accuracy of the information gathered.

The collected data is analyzed using thematic analysis, a method aimed at identifying, analyzing, and interpreting patterns (themes) that emerge from qualitative data. The analysis process is carried out in several stages: transcribing interview results, coding, grouping categories, identifying key themes, and drawing conclusions or meanings from these themes.

Table 1. Respondent Characteristics				
Characteristic	Category	Frequency (n)	Percentage (%)	
Condor	Male	4	40%	
uchuci	Female	6	60%	
	20–30 years	5	50%	
Age	31–40 years	3	30%	
	41–50 years	2	20%	
	< 5 years	3	30%	
Years of Service	5–10 years	4	40%	
	> 10 years	3	30%	
	High School	2	20%	
<b>Education Level</b>	Diploma	3	30%	
	Bachelor's Degree	5	50%	

Table 1. Respondent Characteristics

Source : Research Data Processed in 2025



Fig. 1 Characteristics Respondents

To ensure the validity of the data, several verification techniques were used, namely source triangulation (comparing data from various participants), member check (confirming the interpretation results with participants), and peer debriefing (discussing data and findings with fellow researchers or experts). These techniques are important to enhance the credibility and validity research of the findings. In terms of research ethics, the researcher ensures that each participant is thoroughly informed about the purpose and procedures of the research through an informed consent form before the interview begins. The participants' identities are kept confidential, and the data will be used solely for scientific purposes. The researcher also gives participants the full freedom to withdraw from the research process at any time without any consequences.

### **RESULT AND DISCUSSION**

To gain an in-depth understanding of the administrative staff's perceptions of the implementation of digital technology in the hospital, interviews were conducted with several respondents from diverse backgrounds and work experiences. The purpose of these interviews was to identify the benefits, challenges, and the readiness of human resources to adapt to digital systems, especially in the context of hospital administration.

#### Respondent 1 (Senior Staff - 12 years of service)

Question: What is your opinion on the use of the hospital management information system (SIMRS)?

Answer: "At first, I felt awkward because I was used to using manual books. But over time, I realized that this system is more efficient. Patient data can be directly entered, and we no longer need to search for files in the shelves."

Question: What challenges did you face during the initial implementation? Answer: "*The challenge at the beginning was that we weren't used to it and were afraid of making input errors. Especially since I don't have a computer background. But after the training, I started to catch on.*"

#### Respondent 2 (Junior Staff - 2 years of service)

Question: How did you adapt to this digital system?

Answer: "For me, being already familiar with computers, this system is very helpful. I can complete tasks faster and don't have to go back and forth to other departments to confirm data."

Question: What do you think still needs improvement?

Answer: "The system is good, but sometimes the server is slow or the network goes down. It's frustrating because all work gets delayed."

#### **Respondent 3 (IT Support Staff)**

Question: What challenges do you face in assisting administrative staff with this system?

Answer: "Many senior staff are somewhat hesitant to try new things, so we need to be patient and explain things slowly. We also try to create guides and simulations so that they don't feel overwhelmed."

Question: How is the management's support in this regard?

Answer: "It's quite good, but more investment in hardware and networks is needed. If the equipment is outdated or slow, it's tough for the staff."

Interview Interpretation From the above interviews, it can be concluded that the implementation of the digital information system in the hospital generally received positive responses, especially from younger staff who are already familiar with technology. However, senior staff tend to need more time to adapt and require continuous training to feel comfortable using the system. Technical challenges, such as limited hardware and network interruptions, also hinder the system's effectiveness. Support from the IT team and management is seen as crucial in ensuring the smooth transition.

These findings suggest that the success of digital transformation in hospitals depends not only on technology but also on the readiness of human resources and supporting infrastructure. Therefore, regular training programs, infrastructure improvements, and a personalized approach in assisting staff are key to ensuring the sustainability of an effective digital system.

#### **Research Findings Based on Interview Results:**

The implementation of the hospital information system has brought both positive and challenging experiences for administrative staff. Most respondents acknowledged that digital systems have enhanced the accuracy of data entry and facilitated faster access to patient records. They observed that administrative processes such as patient registration, billing, and report generation became more streamlined compared to manual methods. This, in turn, contributed to better service delivery and increased patient satisfaction. However, several challenges were consistently mentioned. One of the most prominent issues was the lack of adequate training. Many staff members, particularly those who had worked in the hospital for many years, struggled to adapt to the new digital environment. They expressed concerns about not receiving sufficient technical guidance or structured training sessions to help them understand how to operate the system effectively. This created anxiety, especially among older staff who were unfamiliar with computer-based systems.

Another key concern raised by respondents was the limited availability of infrastructure. Several mentioned problems with outdated computers, unstable internet connections, and insufficient technical support during system downtime. These issues often caused disruptions in workflow and delayed patient services. Some also noted that SOPs related to the new system were either unclear or inconsistently applied, further complicating their adaptation process.

Despite these barriers, the overall perception of the hospital information system was positive. Respondents believed that with proper organizational support, regular training, and improvements in infrastructure, the digital system could significantly improve administrative efficiency. Younger staff and those with better digital literacy reported higher levels of comfort and optimism about the transition. Many expressed a willingness to continue using the system and suggested peer mentoring or collaborative learning sessions to assist colleagues facing difficulties.

In conclusion, while the adoption of digital systems in hospital administration has shown promising benefits, its success heavily relies on human factors, particularly user readiness and institutional support. The findings underscore the importance of inclusive training programs, consistent supervision, and the availability of reliable technology as key components to ensure successful system implementation and user satisfaction.

#### Staff Responses to Technology Implementation

The implementation of technology in hospital administration is generally accepted with varying responses from the staff. Some staff members express that the use of technology has helped them improve efficiency and accuracy in their daily administrative tasks. Technologies such as hospital information systems (SIRS) and electronic medical records (EMR) are considered to speed up the patient registration process and medical data processing. However, there are also negative perceptions, particularly from senior staff or those accustomed to manual systems. They experience difficulty adapting to changes, as new technologies often alter their work routines and require time to learn complicated new systems. Despite the significant benefits in terms of efficiency, some staff feel burdened by the demand to master these technologies.

#### **Benefits of Technology for Administrative Processes**

Technology has had a significant impact on the management of patient data and other administrative processes in hospitals. The use of digital systems for data processing allows staff to minimize human errors that often occur in manual systems. This leads to improved data accuracy and speeds up administrative processes such as insurance claim processing and billing. Processes that previously took a long time can now be completed faster thanks to technology. Furthermore, transparency in data management has also increased, as every change made in the system can be clearly tracked. Staff feel that the use of technology not only reduces errors but also helps them work faster and in a more organized manner.

### Challenges and Barriers Faced

Although technology brings many benefits, there are several challenges and barriers faced by administrative staff. One major issue is technical disruptions, such as difficulties accessing systems due to unstable networks or systems frequently encountering errors. Additionally, difficulties in adapting to the new technology are a significant challenge, especially for staff less familiar with technology. The training process, which is considered inadequate or too brief, leaves many staff members struggling to master the new system. Moreover, some staff state that resource constraints, such as inadequate devices or limited hospital infrastructure, often slow down their work processes. These issues often cause frustration and hinder productivity.

### The Role of Training and Technical Support

Training is a key factor in helping staff adapt to the implementation of new technologies. Most staff who have undergone training report feeling more confident in using technology, although some wish for more in-depth and ongoing training. Technical support is also an important issue in the smooth implementation of technology. Administrative staff who face difficulties in using technology often rely on the hospital's IT team for assistance. However, some staff feel that the available technical support is not sufficient to address technical issues directly, which often exacerbates their frustration.

### Perceptions of Technology's Impact on Staff Performance

The implementation of technology also affects staff administrative stress levels and workload. Some staff feel that technology, despite improving efficiency, also adds pressure because they have to work faster and constantly learn new systems. However, many also feel that technology has increased their productivity because they can complete tasks faster and more accurately. The majority of staff report that their job satisfaction has increased because they feel they can work more efficiently and reduce errors that could cause further problems in hospital management.

### Differences in Perceptions Based on Experience and Tenure

Perceptions of technology implementation tend to vary based on staff tenure and experience. Senior staff members tend to find it more difficult to adapt to new technologies because they are accustomed to long-established manual systems. They prefer traditional approaches and feel that these changes affect their work comfort. On the other hand, younger staff members, who are more familiar with digital technologies, find it easier to adapt and are often more open to change. This indicates a difference in the acceptance of technology based on age and work experience.

### Factors Affecting the Success of Technology Implementation

The success of technology implementation in hospitals heavily depends on several factors. One key factor is strong managerial support, where management must ensure adequate resources, including training, hardware, and technical support. Additionally, infrastructure readiness and staff commitment to adapting to technology also play an important role. Some staff state that the success of technology implementation depends on how much support is provided by management, both materially and morally.

### **Recommendations for Improving Technology Implementation**

Based on their experiences, administrative staff have provided several recommendations for improving technology implementation in hospitals. Many staff members suggest the need for more structured and ongoing training to help them better understand and utilize the system effectively. They also recommend that hospitals enhance technical support by providing more IT resources to help staff address technical issues directly. Another recommendation is to pay more attention to infrastructure readiness, including updating hardware and strengthening the hospital's internet network to support the applied digital systems.

## Interpretation of Staff Responses to Technology Implementation

The implementation of technology in hospital administration is often viewed with a mix of positive and negative feelings by administrative staff. On one hand, many staff acknowledge that technology helps improve their work efficiency, reduces administrative burdens, and accelerates the flow of patient data management. For example, hospital information systems (SIRS) and electronic medical records (EMR) allow them to access patient data in real-time, reduce reliance on physical records, and enhance data accuracy. However, on the other hand, some staff express that they feel pressured by such rapid changes, especially when new technologies feel complex or difficult to master. Age, experience, and technology skill levels play a significant role in how staff respond to these changes. Younger staff may struggle and feel uncomfortable with the transition, leading to dissatisfaction.

### Analysis of Technology's Benefits in Administrative Processes

The benefits of implementing technology in hospital administration are significant, particularly in managing patient data and processing medical information. Administrative staff report that with digital systems, patient registration and data processing have become faster and more accurate, reducing human error common in manual systems. For example, the use of EMR has been proven to reduce data duplication and improve information integration between various departments. The speed of data entry and updates also enhances transparency and allows for quicker and more accurate decision-making by healthcare professionals. However, while many benefits are recognized, other studies show that these benefits are only optimal when technology is used correctly and supported by adequate training. It is important to evaluate whether the benefits perceived by staff align with findings in the literature about the effectiveness of technology in the healthcare sector.

### Challenges and Barriers Faced by Staff

Although technology can offer many benefits, its implementation in practice is not without challenges. Many administrative staff express difficulties in dealing with technical disruptions, such as systems frequently encountering errors or limitations in the internet network, which slow down work processes. Moreover, adapting to new technologies often becomes a major obstacle, especially for staff who are less experienced or unfamiliar with digital devices. Insufficient training also constitutes a significant barrier to maximizing technology implementation. Other barriers include inadequate hardware and interoperability issues between existing systems and newly implemented software. These challenges suggest that technology is not an instant solution but requires proper management to function well across the hospital system.

The Role of Training and Technical Support in Successful Implementation

Ongoing training and strong technical support are essential for the successful implementation of technology in hospitals. Administrative staff report feeling more confident in using technology after undergoing intensive training. However, one-time training is not sufficient to ensure that staff fully master the system. Therefore, it is important for hospitals to provide continuous training programs that are easily accessible to staff. Technical support also becomes a determining factor, as staff frequently encounter technical issues that require immediate assistance. If the hospital has a responsive IT team that can provide real-time technical assistance, staff difficulties can be minimized. This shows that not only the technology itself is important, but also how the organization supports end users in adapting to the new system.

#### Impact of Technology on Staff Stress and Workload

The implementation of technology has varied effects on staff administrative stress and workload. Some staff feel that technology helps reduce their physical and mental workload as automation can reduce repetitive manual tasks. However, for some staff, these changes add stress, especially when technology is not functioning properly or when they feel unprepared to operate it. In some cases, the implementation of technology even increases staff workload because they have to resolve technical issues or adjust to new ways of working. This can affect staff job satisfaction, which should be considered in organizational change management.

#### Differences in Perceptions Based on Experience and Tenure

Perceptions of technology tend to differ between staff with more experience and newer staff. Senior staff are often more accustomed to manual ways of working and may feel more comfortable with the previous systems. On the other hand, younger staff tend to be more open to change and adapt to technology more quickly. This study shows that these differences in perception can affect how technology is accepted and implemented in hospitals. This is important to consider when designing training programs and support to cater to the needs and preferences of both newer and more experienced staff.

**Supporting and Hindering Factors in Successful Technology Implementation** The success of technology implementation in hospitals is influenced by various supporting and hindering factors. Key supporting factors found in this study include strong managerial support, infrastructure readiness, and staff involvement in the change process. Hospitals with a strong commitment from management to adopt technology tend to be more successful in implementing new systems. In contrast, major hindrances include technical issues, lack of training, and staff discomfort with change. To ensure the success of technology implementation, a holistic approach is needed, including technical preparation, managerial support, and staff training.

#### **Recommendations for Improving Technology Implementation**

Based on the study findings, several recommendations for improving technology implementation in hospitals include providing more intensive and ongoing training, improving responsive technical support, and enhancing the existing technology infrastructure. Additionally, hospitals are also advised to involve staff in the technology implementation planning process to help them feel more engaged and prepared for the changes. The systems and devices used should also be periodically updated to ensure that the technology implemented can always support the evolving administrative needs.

## Limitations of the Study and Suggestions for Future Research

This study has limitations, such as a small sample size and focusing on only one hospital. Therefore, the findings may not be fully generalizable to other hospitals. Future research could expand the scope by involving more hospitals and different types of healthcare facilities to obtain a broader perspective. Additionally, using a quantitative approach to measure the adoption rate of technology and staff satisfaction could provide more objective and comprehensive data in evaluating the success of technology implementation.

## CONCLUSION

This study concludes that the successful implementation of hospital information systems (SIMRS) significantly depends on various human, organizational, and technological factors. Administrative staff, who serve as the frontline users of the system, play a crucial role in the adoption and optimization of digital health services. The findings indicate that individual factors such as digital literacy, openness to change, and work experience, as well as organizational support including training availability and management commitment, are decisive in shaping user acceptance and system effectiveness. Although technology offers a path toward improved healthcare administration, it cannot be effectively harnessed without aligning with the needs, readiness, and involvement of the people who operate it. Therefore, hospitals must prioritize user-centered strategies, continuous support, and inclusive change management to ensure the long-term success of digital transformation initiatives in the healthcare sector.

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