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Analysis of The Effectiveness of Information Management and Innovation Behavior on Hospitals Organizational Performance in Indonesia

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Abstract

This study aims to analyze the feasibility of technology adoption to improve hospital business performance in Indonesia. The study uses an applied descriptive method. The unit of analysis in this study is the surgical department in both private and public hospitals. Data were collected from internal records and questionnaires. The sampling technique was non-probabilistic. The results of the study analysis indicate that hospital management is currently facing obstacles and challenges related to record management, on the other hand, management realizes that they also find and identify that there are great opportunities to improve and enhance business performance through the use of technology and implementation of management systems in business processes. Detailed and easily accessible record management is essential to ensure patient safety and build effective management capacity. Automation and integrated systems are needed to increase focus on patient satisfaction levels, because high administrative burdens often distract from clinical aspects. The suggestion from the study is that management needs to update the computerization system so that the digitalization process of business processes can run well. Another suggestion is that management needs to improve the quality of human resources and make investments related to the adoption of the latest technology is very important to improve work efficiency and effectiveness.

Keywords: Technology Adoption, Business Performance, Hospitals.

1. Introduction

Rapid advances in medical technology have significantly impacted hospitals' ability to provide better and more efficient healthcare services. Innovations such as telemedicine, digital imaging, and health information systems have transformed the way physicians and other healthcare professionals interact with patients and manage health data [1]. However, despite these significant advances, management in many healthcare institutions, especially hospitals, has not kept pace with these technologies. This creates a gap between the potential offered by new technologies and the ability of management to effectively integrate them into the hospital's day-to-day operations. This gap creates an urgent need to change or re-convert the management model in hospitals. We need more adaptive and responsive management to align the interests of individuals from both production and service units with the institution's overall mission [2]. A management model that not only focuses on operational efficiency but is also able to respond to patient needs, utilize the latest technology, and consider the interests of all stakeholders will be better suited to meet the challenges and opportunities in this digital era [3]. Furthermore, it is important to consider the hospital's environment and the available technology when undertaking management reform. Strategic planning must also consider various external factors such as government regulations, economic pressures, and market dynamics in the hospital's operational environment [4]. Therefore, we need to redesign hospital management to be more flexible and innovative, focusing on achieving the institutional mission while remaining responsive to technological changes and evolving external conditions [5].

In the last few decades, hospitals have undergone a significant re-conversion, redefining not only their primary purpose but also the criteria used to measure their efficiency and effectiveness. This process included the adoption of important concepts such as health care safety, quality of care, and the implementation of measurement standards and outcome indicators [6]. The goal of this conversion was to ensure that they not only function efficiently but also provide safe and high-quality health care to patients. On the one hand, we can see a rapid evolution in technical and technological advances in diagnostic and treatment units. New technologies have enabled more precise surgical procedures, faster diagnoses, and more effective treatments [7]. Management

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changes in healthcare institutions have been slower. Although technology continues to advance, efficient and adaptive management often lags behind, creating challenges in integrating these technological advances into daily practice. Therefore, re-conversion becomes a necessity. To bridge the gap between technological advances and institutional management, we need more modern and innovative management. Improving performance requires a management model that can adapt to technological changes, achieve institutional goals, and consider operational efficiency and service quality [8].

The progressive complexity of hospital technology systems is increasingly evident with the support of computers and communications that enable real-time decision-making and process monitoring. This technology not only improves operational efficiency but also provides hospital managers with deeper and more timely insights, allowing them to respond to situations more quickly and accurately [9]. However, a major change in the hospital's organizational culture is necessary to fully exploit the potential of this technology. Adopting a more open mentality towards technology and innovation, where decisions are based on data and supported by an effective communication system, is part of this cultural change. Hospitals must begin to view technology as an integral component of management strategy, not just an additional tool. Changes in organizational structure, workflow, and stakeholder mindsets are necessary to align with the goal of enhancing service quality and efficiency through technology. In this context, the importance of this change is to address the challenges of increasing technological complexity in hospitals. Organizational cultural transformation that focuses on technology integration and data-driven decision-making will be key for hospitals to remain competitive and provide better healthcare services in the future [10].

Medical technology has made rapid progress, especially in the diagnostic aspect, which is developing faster than the therapeutic field. However, changes in the management of health institutions have not been as rapid as the development of technology, which has led to a gap between technical capabilities and managerial practices in the health sector. Information and communication technology has become an important tool that contributes to improving the quality, safety, and continuity of health services [10]. Effective integration of information and communication technology into the public health system requires active commitment from the government. This support is very important because information and communication technology covers a wide range of applications, from prevention, diagnosis, and treatment to health monitoring, as well as the planning and control of health system management. As a result, the integration of information and communication technology in the health sector not only provides clinical benefits but also strengthens overall health system management. With the right approach, information and communication technology can play a major role in aligning the development of medical technology with management practices in health institutions, thereby increasing the effectiveness and efficiency of health services for the community [11].

In the hospital management system, a harmonious and adequate flow of information is a key element to ensure the organization functions well. This includes effective staff interaction, timely decision-making, and the use of information transmission tools and elements to support the complexity of data and knowledge processing. The goal of health informatics is to improve patient care, increase patient effectiveness and safety, and strengthen information within the health organization, both at the operational and managerial levels [11]. The use of integrated medical records also plays an important role in optimizing internal and external communication within the hospital. In recent years, an increase in demand for surgical services and an increase in costs, both direct and indirect, have had a significant economic impact on health institutions. To face this challenge, many hospitals have implemented strategies and systemic thinking focused on finding more efficient technical and organizational solutions. This approach does not only look at the end result but also focuses on increasing the quantity, quality, and complexity of health services [12]. The surgical center, especially the operating room as a multidisciplinary critical care unit, requires management capable of integrating various areas or services with a primary focus on patient safety and satisfaction [13]. Access to effective information technology support is essential to following the patient care circuit, in which various sectors and professionals are involved. IT support allows for in-depth data analysis and transformation of that data into useful information for effective management, as well as evaluation of the efficiency and effectiveness of the care process. The operating room must have a vision and objectives that align with the overall vision and objectives of the health institution. All parties involved must have accurate and real-time access to the information used, allowing for continuous analysis and process improvement.

2. Research Methods

This study is applied research with a descriptive observational nature, using a transversal and retrospective design. The research design is quantitative-descriptive, collecting data at a specific point in time and analyzing it to gain a comprehensive understanding of specific aspects of the surgical center's management and operation. Retrospective data allows researchers to assess historical data to understand trends and patterns that exist over time. This study used the surgical center in a general hospital as the unit of analysis and conducted the survey there. The surgical center used records or bibliographies as an internal control to collect data. Additionally, we

collected information from respondents using a semi-structured questionnaire that included both closed and open-ended questions. This study applied the non-probabilistic sampling technique, selecting the sample based on specific criteria without considering the probability of selecting each element in the population. This approach allows researchers to focus on specific aspects that are relevant to their research objectives.

3. Results and Discussion

The study's results revealed that hospitals maintain complete forms for each performed procedure, which serve to validate the medical action. The number and type of these forms varies for each institution, reflecting different standards and needs. Recording these forms in a numbered book for official and legal purposes reinforces their use. The importance of official forms and records lies in their ability to ensure patient traceability throughout the entire surgical process, from the time the patient enters the surgical area until they leave. Patient traceability is considered a critical process that ensures patient safety, facilitates monitoring, and allows for effective auditing of the procedures performed. This process helps maintain the quality of health services in the institution, as it allows staff to track and verify each step in the surgical care process. Institutions can increase transparency and accountability in surgical center management with accurate and structured records. However, the study's results also indicate the need for changes in the hospital's internal management processes. Respondents emphasized that these changes are important not only to facilitate information search and access, but also to improve the quality of the data produced. With better-quality data, institutions can better keep up with the ever-evolving technological advances, thus supporting more efficient operations and better services for patients.

More than 82% of the surveyed respondents believed that using an application for surgical patient traceability would significantly improve patients' safety during surgery. They emphasized that this step would not only improve the implementation of patient safety sheets, such as surgical procedure checklists and patient identity confirmation, but would also support the digitization of record-keeping in the operating room. This includes consumption protocols for surgical procedures, documentation of pathological anatomy or cytology, cultures, and recording of prostheses and implants if used. In terms of important internal subprocesses, it is also necessary to integrate patient care traceability with proper verification of each procedure performed. This includes receiving orthopedic materials for scheduled patients and ensuring that the doctor's request for the material is fulfilled with the right instruments, is sterile, and is in a condition suitable for transfer and manipulation. Internal management of pathological samples was also considered a crucial subprocess that must comply with internal procedures, including documentation when removing foreign bodies, projectiles, or other elements obtained during surgery. Respondents said that having proper records for these critical procedures would be essential to ensuring the safety and quality of surgical care.

One of the study's key findings was that respondents were unaware of the average cost of their surgical procedures. This uncertainty about costs has an impact on the surgery center's financial management and operational efficiency. Variations in surgical procedure costs and unclear cost dependencies can hinder effective budget planning and resource management. This creates challenges in ensuring appropriate fund allocation and optimal cost management, which are essential for maintaining financial and operational stability. In addition, the survey showed that respondents were unaware of the mission and vision of the institutions where they work. A lack of understanding of the mission and vision of the institution can affect the quality of services provided. Without clear direction and ideals, staff may have difficulty aligning their work with the institution’s strategic goals, which can reduce the effectiveness and quality of care. A clear understanding of the institution’s mission and vision is key to strengthening inclusion criteria and ensuring that all team members are working toward the same goals. Adequate knowledge of the mission and vision is also important for increasing cohesion and focus in providing quality services. With clear direction, staff can better align their actions with the institution’s strategic goals, increasing the efficiency and effectiveness of their work. Integrating this understanding into training and internal communication can help ensure that the entire team is committed to a common goal, which ultimately has a positive impact on the quality of care provided to patients.

Surgery centers in healthcare institutions require continuous human resource development and significant investment in technology and supplies to ensure optimal functioning and competitiveness in the market. Given the demanding nature of surgical services, many countries consider the surgery center to be the heart of the hospital or healthcare institution. Therefore, to effectively fulfill the institutional mission, it is crucial to ensure efficient management of critical processes such as surgical patient care traceability and internal subprocesses. The continuous development of medical and non-medical staff is essential to maintaining service standards and adapting to technological advances. Well-trained staff who understand technological advances can improve the quality of care and patient safety. Investment in the latest technology and state-of-the-art medical equipment supports operational efficiency and ensures that the surgery center can perform procedures with the required accuracy and speed. With excellent management, the surgery center can meet high service demands and contribute to the overall success of the healthcare institution. Investment in staff and technology development not only supports operational efficiency but also improves the quality of care provided to patients. As a result,

surgical centers can maintain their competitiveness in the market and play a vital role in the overall success of healthcare institutions.

Regardless of the complexity classification, having the necessary records and protocols for each procedure and activity in a surgical center is critical to ensuring adequate management and safe care processes. Detailed records serve not only as documentary evidence but also as the basis for building a comprehensive surgical production database. This database allows institutions to analyze all surgical activities in a holistic manner, providing important insights for resource planning and management. With an integrated database, institutions can collect important information that is useful for planning purchases in the coming year. This includes monitoring and evaluating areas that require improvement or adjustment. This information assists in planning and managing material and equipment requirements, as well as identifying trends and patterns that may affect the surgical process. In addition, recorded data facilitates effective monitoring of processes and outcome indicators, supporting continuous improvement efforts. Systematic recording and in-depth data analysis enable institutions to evaluate and optimize surgical processes, thereby improving patient safety and care efficiency. Surgical centers, equipped with an integrated recording system and structured data analysis, can guarantee efficient operational management, enhance the quality of surgical services, and guarantee the safe and effective execution of every procedure.

The large number of records required for surgical patient traceability has created a significant administrative burden for technical staff, including surgical instrumentation personnel. This administrative burden not only involves the responsibility for comprehensive patient care and monitoring but also requires in-depth knowledge of a variety of surgical techniques, procedures, and complex work processes. In addition, staff must ensure implementation and compliance with a variety of internal regulations and operational protocols. All of these tasks add complexity to their work and often divert attention from crucial clinical and technical aspects. These heavy administrative obligations can affect staff efficiency and performance, with potential impacts on the quality of surgical care services. Administratively burdened staff may struggle to maintain focus and concentration on patient care and surgical techniques, potentially jeopardizing patient safety and procedure effectiveness. We need more effective solutions to manage the administrative burden and overcome these challenges. Integrated systems and automation of record-keeping can help reduce manual tasks, reduce human errors, and facilitate quick access to relevant information. With the implementation of an efficient management system, staff can reduce the administrative burden and focus more on the clinical and technical aspects of their work. The use of advanced information technology in recording and monitoring can help to speed up workflow, reduce errors, and improve the quality of surgical services. In addition, a successful system can provide useful data analysis for continuous improvement and resource planning, thus supporting more effective and efficient management of the surgical center. Administrative management innovation can enhance patient safety, operational efficiency, staff satisfaction, and guarantee the highest standards in every surgical procedure.

Computerized record-keeping has made a significant contribution to operational management in surgical centers, facilitating data management and increasing overall efficiency. Digital systems enable faster, more accurate, and more structured data processing, which supports better clinical and administrative decision-making. However, often, external factors such as a lack of efficient record-keeping and inadequate system support can result in difficulties in maintaining digital record-keeping systems over time. These issues can lead to a decline in management, forcing institutions to revert to manual record-keeping using paper records. Reliance on poorly integrated manual record-keeping systems can hinder the flow of information, increase administrative burden, and reduce operational efficiency. Failure to integrate record-keeping processes with existing technology can lead to data duplication, input errors, and delays in information processing, thereby affecting the quality and speed of service. In addition, high administrative burdens and inefficient workflows can distract staff from focusing on more important clinical tasks. Therefore, to ensure the sustainability and effectiveness of record-keeping, it is crucial to provide effective maintenance and adequate technical support for computerized systems. Investments in system maintenance, staff training, and technology upgrades are key to avoiding a relapse into manual record-keeping. With the right support, computerized systems can continue to provide benefits, improve operational efficiency, and ensure optimal data management.

The survey identified the feasibility of technology conversion to optimize management in surgical centers, indicating the potential to improve existing systems with the right technology support. Despite the implementation of surgical safety sheets in the three surveyed hospitals, the study revealed significant variation in technology use among them. This indicates the need for a more uniform and integrated approach to technology implementation across facilities. Respondents to the survey expressed a desire to add or improve technology applications that support the internal management of surgical services. While existing technology has provided assistance in the management process, there is a strong push to update and develop existing systems to be more effective in improving the quality of service management and patient safety. Better technology enables more efficient data integration, information management, and safety protocol implementation, thereby lowering the risk of errors and enhancing patient safety. Overall, these findings suggest that technology enhancements will

not only improve operational management but will also improve patient safety and the quality of surgical services. Investing in the latest technology and updating existing systems is essential to ensuring that the surgery center can function optimally, maintain patient safety, and meet high standards of service.

4. Conclusion

The analysis concludes that healthcare institutions face a number of management and record-keeping challenges, but there are significant opportunities for improvement through technology conversion and management systems. Detail records and protocols are critical to ensuring effective management and patient safety. These records not only support patient traceability, but also allow for comprehensive analysis of surgical activities, process monitoring, and outcome indicators. With a systematic record-keeping system and integrated database, institutions can plan resources more efficiently and improve the overall quality of surgical services. However, the high administrative burden often overwhelms technical staff, including surgical instrumentation staff, potentially diverting their attention from crucial clinical and technical aspects. The implementation of integrated systems and automated record-keeping is essential to reduce manual tasks, minimize human errors, and increase focus on patient care and surgical techniques. Although computerization of records has contributed to operational efficiency, issues such as lack of archive maintenance and system support can make it difficult to maintain digital systems. Therefore, it is important to continuously develop and update technological systems. Integration and digitization are also aspects that need to be considered. Survey respondents emphasized the need for technology applications that support the internal management of surgical services, including record-keeping digitization. Better technology can improve documentation, monitoring, and implementation of safety protocols more efficiently, reduce the risk of errors, and enhance patient safety.

References

[1] Chauhan, C., Dhir, A., Akram, M. U. I., & Solo, J. (2021). Food Loss and Waste in Food Supply Chains: A Systematic Literature Review and Fremework Development Approach. *Journal of Cleaner Production*, 1-14.

[2] Purbaningsih, Y., Jamadi, J., Junianto, P., Fittriya, N. L., & Ekasari, S. (2021). Human Resource Management Strategy Prediction in Small Business Marketing after Pandemic. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, *4*(4), 8316-8326.

[3] Rezeki, S. R. I., Dharmawan, D., Saksono, L., & Ekasari, S. (2023). Analysis of the Influence of Digital Information Quality, Technology Performance Expectancy, Technology Effort Expectancy, Price Value and Social Influence on Intention to Use Coffee Shop Mobile Application. *Jurnal Informasi dan Teknologi*, 171-176.

[4] Herawati, C., Abdurakhman, R. N., & Neneng, S. (2020, March). The effect of stop open defecation (BABS) triggering method on open defecation behavior. In *Journal of Physics: Conference Series* (Vol. 1477, No. 6, p. 062021). IOP Publishing.

[5] Abdurakhman, R. N., Hidayat, A., Taswidi, D., & Romadoni, A. (2022). Effect of hypertension exercise on blood pressure in the elderly. *World Journal of Advanced Research and Reviews*, *13*(3), 491-495.

[6] Yunus, R., & Sitio, A. Saudi Journal of Business and Management Studies (SJBMS) ISSN 2415-6663 (Print).

[7] Putra, H. D., Astuti, E. S., Kusumawati, A., & Abdillah, Y. (2020). Brand Commitment as Mediator of Brand Love-Customer Citizenship Behavior Relationship in Using Mobile Wallet in Indonesia. *TEST Engineering & Management*, *83*, 3238-3249.

[8] Putra, D. H. (2019). Exploring Antecedents to Customer Citizenship Behaviour: A Proposed Model. *International Journal of Innovation, Creativity and Change*, *8*(4), 47-61.

[9] Sudirjo, F., Mustafa, F., Astuti, E. D., Tawil, M. R., & Putra, A. S. B. (2023). Analysis Of The Influence Of Hedonic Motivation, Digital Devices Ease Of Use Perception, Benefits Of Digital Technology And Digital Promotion On Intention To Use Of Digital Wallets Consumers. Jurnal Informasi Dan Teknologi, 33-38.

[10] Pramudito, D. K., Sumarni, A. T., Astuti, E. D., & Aditi, B. (2023). The Influence of User Trust and Experience On User Satisfaction Of E-Commerce Applications During Transactions in Mini Markets Using Delon and McLean Method. Jurnal Sistim Informasi dan Teknologi, 1-7.

[11] Setyawati, K., Ausat, A. M. A., Kristanti, D., Setiadi, B., & Astuti, E. D. (2023). The Role of Commitment, Work Ethos and Competence on Employee Performance in Sharia Commercial Bank. JEMSI (Jurnal Ekonomi, Manajemen, dan Akuntansi), 9(2), 523-529.

[12] Rosalia, I., & Astuti, E. D. (2024). Analisis Organizational Citizenship Behavior Terhadap Kinerja Karyawan. *Jurnal Mahasiswa Kreatif*, *2*(2), 35-41.

[13] Tannady, H. (2019). Process improvement to reduce waste in the biggest instant noodle manufacturing company in South East Asia. *Journal of applied engineering science*, *17*(2).