



Relationship of Information Technology System and Work Efficiency: Evidence from a Philippine Government Hospital

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Received: February 26, 2026

Revised : April 10, 2026

Accepted : April 23, 2026

Online : October 14, 2026

Abstract

The adoption of information technology (IT) is increasingly vital in improving healthcare services in government hospitals. This study examined IT system adoption in a Philippine government hospital and its relationship to staff's work efficiency. Using a descriptive correlational design, data were collected from 214 plantilla and contractual employees via Google Forms and analyzed through frequency and percentage distribution, weighted mean, and Spearman's rank-order correlation. Results revealed that the IT system had a moderate impact on staff performance, with usability, accessibility, and frequency of use influencing efficiency. Staff generally agreed that the system supported daily tasks, improved workflow, and reduced backlogs, indicating its positive contribution to task completion, accuracy, and time management. A high significant positive correlation was found between all dimensions of IT adoption and work efficiency, confirming that IT use enhances staff performance. However, there are still challenges encountered in using IT system which can hinder optimal system utilization. Based on the findings of the study, proposed strategies were recommended for improving IT system utilization to further enhance the overall work efficiency of hospital staff. Theoretically, the study builds on Socio-Technical Systems Theory by demonstrating how technology integration mitigates operational risks and strengthens institutional resilience. Managerially, it contributes to public sector governance and risk-informed decision-making literature by positioning IT adoption as a strategic tool for accountability, efficiency, and sustainability in healthcare systems. Importantly, the findings underscore the need for governance strategies that combine technological investment with workforce development to ensure reliable, resilient, and sustainable healthcare service delivery.

Keywords: *Healthcare, Information Technology System, Socio-Technical Systems Theory, Work Efficiency*

INTRODUCTION

The adoption of Information Technology (IT) systems in government hospitals is not only a matter of improving work efficiency but also a critical governance and sustainability concern. Effective IT systems help simplify and organize daily tasks, reduce reliance on manual processes, and support smoother coordination among hospital staff, thereby strengthening accountability and continuity of public service delivery. By improving access to information and streamlining routine work, IT enables healthcare workers to devote more time to patient care. Research by [Cline and Luiz \(2013\)](#) highlighted that IT use in public hospitals enhances workflow and staff performance, particularly in resource-limited settings. However, weak usability, limited accessibility, and inadequate training can undermine these benefits. As [Choi et al. \(2025\)](#) found, nurses often struggle to integrate smart technologies into daily practice due to usability concerns and workflow disruptions. Such challenges pose risks beyond efficiency: poor IT adoption can compromise documentation accuracy, disrupt coordination among staff, weaken accountability mechanisms, and jeopardize the sustainable use of public resources. This underscores that technology availability alone is insufficient; successful IT adoption in public healthcare requires alignment of human capacity, organizational processes, and governance structures to ensure resilient, transparent, and sustainable service delivery.

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Global evidence shows that hospital IT adoption enhances efficiency and organizational performance, improving workflows, administrative processes, interoperability, and patient satisfaction (Salleh et al., 2021; Huaytan et al., 2024; Windari et al., 2023; Park & Park, 2024; Westerhof et al., 2024). However, its success depends on context, with challenges such as infrastructure gaps, integration issues, and data security underscoring the need for implementation strategies that align technical capability with professional workflows and organizational needs. On the other hand, Philippine scholarship on health information technology highlights three interconnected themes.

First, IT systems have been shown to improve efficiency when integrated into clinical practice. For example, nurses using a homegrown electronic medical record reported greater satisfaction, improved communication, and reduced reliance on manual tasks, which eased stress and enhanced collaboration (Rosales, 2025). Similarly, tertiary hospital research demonstrated that electronic health record usability and informatics competency contributed to more efficient documentation, streamlined data access, and better patient outcomes (Yngente & Aliswag, 2025). Second, adoption barriers continue to limit effectiveness. Evidence from primary care settings revealed that accessibility and sustained use varied across sites, with rigid or poorly designed systems risking underutilization or abandonment (Elepaño et al., 2025). This underscores that technology provision alone does not guarantee performance gains; without flexibility and user-centered design, IT systems may inadvertently add to administrative burdens. Third, user capability and system design jointly shape outcomes. Rosales (2025) emphasized the importance of training and feedback in ensuring smooth implementation, while Yngente and Aliswag (2025) showed that nurses' informatics skills and perceptions of usability directly influenced performance gains. Together, these findings highlight that both human competency and thoughtful system design are critical to realizing IT's potential in healthcare.

Despite these insights, unresolved questions remain in the context of public hospital governance and sustainable service delivery. Current studies largely focus on system-level benefits or site-specific challenges, but they do not fully address how government hospitals—often constrained by limited resources and bureaucratic processes—can institutionalize training, maintain usability across diverse infrastructures, and embed IT adoption into long-term governance frameworks. The gap lies in understanding how perceived ease of use and frequency of engagement translate into measurable improvements in task completion and time management within resource-limited public institutions. Addressing this gap is crucial for ensuring that IT systems not only enhance efficiency in the short term but also contribute to sustainable, equitable healthcare delivery in Philippine hospitals.

The subject of this study is a Philippine government hospital that provides general healthcare services and plays a vital role in ensuring accessible care for the community. Unlike private hospitals, government institutions operate under stricter bureaucratic processes and public accountability, which often slow decision-making and limit flexibility in adopting innovations. They also face infrastructure limitations such as outdated facilities and insufficient IT resources; alongside staffing constraints and heavy patient loads tied to their public service obligations. These distinct challenges make government hospitals uniquely vulnerable to inefficiencies, highlighting the importance of examining IT adoption not only as a technical intervention but also as a governance issue central to sustainable healthcare delivery. This study is particularly timely and relevant as Philippine government hospitals navigate the complexities of a post-pandemic healthcare environment, where the demand for rapid, data-driven service has never been higher. By analyzing the relationship between IT system adoption and work efficiency, this research offers empirical evidence to guide the shift from temporary digital stop-gaps toward a sustainable, high-performing digital infrastructure that enhances staff productivity and improves patient outcomes.

Thus, this study examined the relationship of the adoption of IT system and work efficiency in a Philippine government hospital. Specifically, this study assessed the IT system adopted in the government hospital in terms of system usability, accessibility, and frequency of use. It also determined the level of work efficiency of hospital staff, specifically in terms of task completion, accuracy of work, and effective time management. This research also analyzed the significant relationship between IT system adoption and work efficiency of hospital staff. Furthermore, it identified challenges encountered by hospital staff in the adoption of IT system. Based on the findings of the study, the researchers proposed strategies for improving IT system utilization to further enhance the overall work efficiency of hospital staff. In line with these objectives, this study addresses the following questions: (1) What is the level of IT system adoption in terms of usability, accessibility, and frequency of use?; (2) What is the level of work efficiency in terms of task completion, accuracy of work, and effective time management?; (3) Is there a significant relationship between IT system adoption and work efficiency?; (4) What adoption challenges are experienced by the hospital staff?; and (5) What proposed strategies can be recommended to improve IT system utilization to further enhance the overall work efficiency. Using the Socio-Technical Systems (STS) Theory as framework, which highlights how relationships, interdependencies, and interactions between social elements such as people and technical elements drives work efficiency ([Kemp et al., 2024](#)), this study offers actionable strategies for improving both IT system utilization and work efficiency of hospital staff.

For its theoretical contribution, this study extends STS application to public hospital IT adoption by testing how usability, accessibility, and usage frequency relate to work efficiency. As to its practical contribution, the study can inform hospital administrators and policymakers on how to reduce implementation risks, improve staff support, and strengthen sustainable digital governance in public healthcare.

LITERATURE REVIEW

Consistent with the study's objectives, the researchers conducted a thorough review of reputable literature to deepen their understanding of the study variables. This section discusses the impact of IT system on work efficiency.

Socio – Technical Systems (STS) Theory

This research study is grounded in the STS Theory, an organizational framework that conceptualizes work or systems in terms of their social and technical subsystems, aiming to achieve success through joint optimization ([Abbas & Michael, 2026](#)). The STS approach distinguishes among dimensions such as the socio-psychological, which emphasizes human factors; the technological, which refers to artifacts and physical components; and the economic, which represents the efficiency of interactions between human and technological resources ([Trist et al., 2016](#)). In healthcare, where patients, families, and diverse professionals are central, the human dimension becomes particularly critical, underscoring the relevance of STS analysis for quality care and patient safety.

STS theory also entails integrating knowledge from multiple disciplines to align sociology and technology for optimal outcomes, fostering interaction between people and technological components ([Janse, 2022](#)). Within the context of this study, the technical subsystem maps onto system usability and accessibility, reflecting how IT design and infrastructure influence adoption. The social subsystem corresponds to user readiness, training, and work practices, highlighting the importance of workforce skills and organizational culture. The joint optimization outcome is represented by staff work efficiency, achieved when technical capabilities and human factors are aligned. Thus, STS provides a robust explanatory framework for hypothesizing the significant

relationship between IT system adoption in a government hospital and the work efficiency of hospital staff, making the theory both conceptually rigorous and directly testable in this study.

Adoption of IT System in Government Hospitals

Studies on hospital IT system adoption emphasize that usability, accessibility, and frequency of use are central to effectiveness, enabling staff to work efficiently, inclusively, and with systems integrated into daily routines (Evio & Bonito, 2024; Tinam-isan & Naga, 2024; Jontarciego et al., 2024). At the policy level, accurate data, informed decision-making, and user acceptance are highlighted as foundations for sustainable modernization, consistent with the Philippines' Universal Healthcare Law (Cortez et al., 2023; De Mesa et al., 2024). Broader research on digital governance shows improvements in efficiency, transparency, and accountability, though corruption and collusion remain largely unaffected, with outcomes depending on infrastructure, political will, and digital literacy (Darusalam et al., 2023; Sadat et al., 2025; Krasnykov et al., 2024).

In healthcare, digital systems reduce operational risks when supported by strong security and management practices, with studies highlighting the need to balance cybersecurity and innovation to safeguard data and ensure continuity of operations (Lama et al., 2025; Clarke & Martin, 2024), while cybercrime poses threats to logistics and supply chains (Wright, 2023). Technology-driven measures such as access control, encryption, and data integrity strengthen risk management and business continuity (Kanaan et al., 2025), and effective governance and risk management practices improve care quality, patient safety, and sustainability (Alqahtani et al., 2025). Compliance with health information standards remains uneven—electronic medical records demonstrate promise in rural health units but broader systems remain fragmented (Macabasag et al., 2022; Garcia et al., 2022). Digitalization fosters accountability by improving transparency and service delivery, but requires supportive infrastructure, legal frameworks, and effective policy enforcement (Cruz et al., 2025; Chung et al., 2025). Sustainability depends on governance, funding, leadership, and stakeholder engagement, with innovations such as smart cards enhancing patient empowerment and continuity of care, while addressing resource gaps and communication barriers is critical for resilience (Hartigan-Go et al., 2025; Sucaldito et al., 2025; Tinam-isan & Naga, 2024; Evio & Bonito, 2024). Taken together, these findings suggest that adopting robust IT systems in government hospitals can strengthen governance, reduce risks, ensure compliance, enhance accountability, and sustain service delivery for improved healthcare outcomes.

Work Efficiency of Hospital Staff

Work efficiency in hospitals is generally defined as the ability of staff to complete tasks accurately, on time, and with minimal wasted effort. Studies agree that IT systems can enhance this by reducing manual work, improving accuracy, and supporting time management (Yap et al., 2024; Hanaysha, 2016). Evidence also shows that stress undermines productivity, making supportive IT systems critical for sustaining efficiency (Bui et al., 2021; Estreller et al., 2025). The consensus is that IT system adoption, when paired with adequate resources and training, improves staff performance and organizational outcomes. However, contradictions emerge in resource-constrained settings: while IT promises efficiency gains, limited budgets, infrastructure gaps, and lack of trained personnel often hinder its potential.

In the Philippine context, these limitations are particularly evident. Escano-Arias et al. (2025) noted that local governments, empowered under the Local Government Code, often struggle to allocate sufficient budgets for IT resources and training. Chung et al. (2025) found that only half of surveyed local government units had budget allocations for health information systems, and very few had dedicated IT staff, leaving clinical personnel to manage data encoding alongside patient care. This creates inefficiencies and undermines the intended benefits of IT system adoption. The

unresolved issue, therefore, lies in bridging the gap between technical capability and governance realities. The present study addresses this by examining how IT system adoption—through usability, accessibility, and frequency of use—directly influences staff efficiency in a Philippine government hospital, connecting digital modernization with sustainable improvements in task completion, accuracy, and time management. In synthesis, while global and local evidence affirms IT's potential to drive efficiency, its success ultimately depends on bridging resource limitations with governance-driven support for sustainable implementation.

Relationship Between the Adoption of IT System and Work Efficiency of Hospital Staff

The adoption of IT systems in healthcare is widely recognized as a strategic intervention that integrates digital infrastructures into routine workflows to improve efficiency and strengthen institutional capacity. Scholars consistently highlight that healthcare professionals are more willing to adopt IT systems when they are user-friendly and directly enhance everyday tasks, reflecting the principle of situated learning where digital skills are acquired through real work activities ([Jontarciego et al., 2024](#); [Yumen, 2025](#)). The COVID-19 pandemic further accelerated this transformation, emphasizing the urgent need for resilient infrastructures and skilled personnel ([Amit et al., 2021](#)). Yet, limitations remain, particularly in resource-constrained settings where paper-based systems persist due to inadequate investments and shortages of IT and human resources ([Chung et al., 2025](#)). Taken together, these findings suggest that IT adoption is not merely a technical upgrade but a dual mechanism that enhances staff productivity while building institutional resilience, a perspective that frames the present study's focus on tailoring adoption strategies to diverse healthcare environments.

The current study integrates existing literature and provides an empirical assessment of this relationship within a Philippine hospital context. The identified gap was investigated whether specific dimensions of IT system adoption directly influence the work efficiency of hospital staff. Based on the findings of prior studies, the researchers formulated the following alternative hypothesis:

H_a: There is significant relationship between the adoption of IT system and work efficiency of hospital staff.

To evaluate this hypothesis, this present study utilized a non-parametric correlation analysis, where the adoption of an IT system (measured in terms of system usability, accessibility, and frequency of use) serves as the independent variable, and the hospital staff's work efficiency (measured specifically in terms of task completion, accuracy of work, and effective time management) is the dependent variable.

Challenges in the Adoption of IT System

The literature highlights several persistent challenges that hinder IT system adoption in government hospitals. Inadequate personnel training and limited digital skills across a diverse healthcare workforce often lead to user resistance and reluctance to change ([Tinam-isan & Naga, 2024](#)). This is compounded by entrenched reliance on manual processes and paper-based records, which contribute to poor data quality and operational inefficiencies ([De Mesa et al., 2024](#)). Broader sociotechnical and organizational constraints, such as insufficient infrastructure and resource limitations, further obstruct effective implementation ([Ebardo & Celis, 2019](#)). [Evio and Bonito \(2024\)](#) also emphasized that while IT is vital to enabling universal healthcare, these same barriers—training gaps, resource shortages, and cultural resistance—can obstruct progress toward achieving UHC goals, particularly in hospital settings with limited capacity.

Synthesizing these findings, the present study situates IT adoption as a complex process that extends beyond technical installation, requiring alignment with organizational culture,

workforce readiness, and adequate infrastructure. While the promise of improved efficiency is clear, unresolved challenges such as inadequate training, reliance on manual systems, and resource constraints directly affect staff performance in government hospitals where accuracy and timely access to information are critical. By connecting these limitations to the study's focus, IT system adoption is framed not only as a tool for efficiency but also as a necessary reform to strengthen institutional resilience and support the broader objectives of universal healthcare in the Philippines.

RESEARCH METHOD

The researchers employed a quantitative, descriptive correlational research design to explore the relationship between IT system and work efficiency in a Philippine government hospital. This design is appropriate for examining associations among usability, accessibility, frequency of use of IT systems, and work efficiency in a public hospital context (Kapepo et al., 2025). The population of the study consisted of 480 employees across different hospital departments, including 283 contracts of service personnel and 197 plantilla employees. Using the Raosoft calculator with a 5% margin of error and a 95% confidence level, the required sample size was determined to be 214 hospital staff, ensuring the survey results are reliable, representative, and valid (Memon et al., 2020). Stratified random sampling was used to proportionally include plantilla and contract-of-service employees. These groups were selected because they use IT system daily for operations, patient records, and reporting. Consultants were excluded because their work is focused on clinical diagnosis and patients' treatment and does not center on routine administrative tasks. This sampling method ensures balanced representation across subgroups as demonstrated in health survey research (Howell et al., 2020). Random selection of respondents within each stratum was considered to strengthen representativeness and enable subgroup analysis. Table 1 presents the proportional distribution of respondents by current employment status. It must be noted that the number of employees occupying plantilla and contract of service positions as of February 2026 was provided by the Human Resources Department of the subject government hospital. The population presented excluded the number of consultants employed by the hospital.

Table 1. Proportional Sample Distribution of Respondents by Current Working Position

Current Working Position	No. of Respondents	Sample Size	Proportion
Plantilla	197	88	41.04
Contract of Service	283	126	58.96
Total	480	214	100.00

The researchers developed a questionnaire structured in accordance with the study's objectives. The questionnaire contains 40 items adapted from previous studies, covering three dimensions of IT system adopted by a government hospital with five items each for system usability (Kruse et al., 2022), accessibility (Khairat et al., 2018), and frequency of use (Vraňáková & Gyurák Babel'ová, 2025). It also contains three dimensions of the work efficiency of hospital staff with five items each for completion (Wurster et al., 2024), accuracy (Sood et al., 2024), and effective time management (Chen et al., 2025). On the other hand, the 10-item constructs for challenges encountered in the adoption of IT system were based on prior studies on the use of health information system (Olakotan et al., 2025; Rajan et al., 2016; Tinam-isan & Naga, 2024). All items for each construct were adapted to fit to the context of the current study. Responses were measured using a 4-point Likert scale: 1- Strongly Disagree (1.00-1.75), 2- Disagree (1.76-2.50), 3-Agree

(2.51-3.25), 4-Strongly Agree (3.26-4.00), indicating the extent to which participants agreed with each statement. To ensure validity, the instrument was evaluated by two experts in hospital administration with background in IT, and their recommendations were integrated into the final version. These experts evaluated clarity, relevance, and alignment of the questionnaire items with the study objectives. The finalized questionnaire was pilot tested with 21 participants, not included in the main study, and their responses were analyzed using Cronbach's alpha to assess the reliability of the instrument in measuring the relationship of the adoption of IT system in the government hospital and work efficiency among hospital staff. Table 2 shows good to excellent reliability, as values above 0.70 are considered acceptable in studies evaluating healthcare technology adoption among hospital staff (Addotey-Delove et al., 2022).

Table 2. Reliability Test

Indicator	No. of Items	Cronbach's Alpha
IT System Adopted by the Government Hospital		
System Usability	5	0.972
Accessibility	5	0.972
Frequency of Use	5	0.972
Average		0.972
Level of Work Efficiency of Hospital Staff		
Completion	5	0.972
Accuracy of Work	5	0.972
Effective Time Management	5	0.972
Average		0.972
Challenges Encountered by Hospital Staff in the Adoption of IT System	10	0.973

Data collection was conducted from January 20 to 23, 2025, utilizing a web-based Google Form. The survey was disseminated to sampled 214 hospital staff via secured digital platforms, including Messenger and Viber, to facilitate the efficient collection of responses. Confidentiality of participants was strictly maintained, and all data were exclusively used for academic purposes. Participation was voluntary, and respondents had the right to withdraw at any time without any consequences. Responses of the sampled hospital staff were monitored in the Google Form by linking the form to a Google Sheet for real-time tracking and analysis. Incomplete responses in Google Forms were avoided by using required fields, ensuring that respondents answered all essential questions before submission. For this study, a 100 percent retrieval rate was achieved, yielding 214 usable responses for analysis. Therefore, all the randomly selected respondents for both plantilla and contract of service employee groups appropriately responded to the questionnaire distributed thus no replacement of respondents occurred.

Demographic information of the respondents were analyzed in terms of frequency and percentage while the dimensions of the variables (IT system adopted and work efficiency) were examined using weighted mean scores. For the correlation analysis between IT system adopted and work efficiency, Spearman's Rank-Order Correlation was selected as the appropriate non-parametric test because it does not assume normal distribution of variables and is well suited for data such as Likert scale type of survey responses (Pruekpramool et al., 2020). Prior to correlation analysis, assumption checks were conducted to verify ordinal scale and monotonic relationship. This allowed the study to determine how patterns of IT systems adoption relate with work efficiency. Spearman's method assesses the monotonic relationship between ranked variables

rather than a strictly linear one and has been widely applied in recent research involving ordinal survey data ([Hermanto & Harliana, 2024](#)). All statistical tests were evaluated using a two-tailed decision rule with significance set at $p < 0.05$. Analyses were performed using IBM Statistical Package for the Social Sciences (SPSS) Statistics version 25.

FINDINGS AND DISCUSSION

This section provides a detailed analysis and interpretation of the survey questionnaire collected to fulfill the study's research objectives.

Demographic Profile of Respondents

The respondents of the study consisted of hospital staff, including both plantilla and contractual personnel, from a government hospital. Their demographic profiles are summarized in Table 3.

Table 3. Demographic Profile of Respondents

Indicator	Frequency	Percentage
Gender		
Female	137	64.02
Male	77	35.98
Total	214	100.00
Age		
21-30 years old	69	32.24
31-40 years old	107	50.00
41-50 years old	26	12.15
> 50 years old	12	5.61
Total	214	100.00
Role		
Nursing	96	44.86
Ancillary	33	15.42
Finance	31	14.49
Hospital/Administrative	54	25.23
Total	214	100.00
Years of Service		
6 months-1 year	41	19.16
1-3 years	82	38.32
3-6 years	91	42.52
Total	214	100.00

Majority of respondents in this study were between 31 and 40 years old, predominantly female, with an average service tenure of three to six years. Most respondents held nursing positions, followed by administrative, ancillary, and finance roles. This suggests that the hospital workforce is largely composed of mid-career professionals with solid experience and stable tenure. This demographic distribution aligns with common patterns observed in government hospitals, which tend to have a workforce dominated by nursing staff, mid-aged employees, and female personnel ([Estrella et al., 2021](#)).

IT System Adopted by the Government Hospital

IT system adopted by the government hospital included dimensions such as system usability, accessibility, and frequency of use. Table 4 presents the respondents' perception on the IT system adopted by the hospital.

Table 4. IT System Adopted by the Government Hospital

Dimension	Mean	Descriptive Rating
System Usability	3.11	Agree
Accessibility	3.15	Agree
Frequency of Use	3.30	Strongly Agree
Mean of Means	3.19	Agree

Employees' use of the hospital's IT system appears to be highly integrated into their daily routines, with descriptive results showing frequent and consistent adoption. These patterns suggest that greater integration of IT systems is associated with higher levels of perceived efficiency and accuracy in work routines. The finding highlights that hospital management can leverage integrated IT use to streamline workflows, reduce inefficiencies, and strengthen decision-making. Moreover, the IT system's usability and accessibility show moderate ease of use and functionality, thereby it reduces the need for manual and repetitive tasks which allow them to manage their responsibilities effectively. This study confirms and extends earlier findings by [Haule and Muhanga \(2021\)](#), showing that frequent IT system use improves workflow management. In the Philippine public hospital context, it demonstrates that digital integration not only boosts efficiency but also supports sustainable operations, reinforcing the relevance of prior research in a local setting.

The overall mean indicated that the hospital staff generally accepted and used the IT system in their work routines. This suggests that the system was being implemented to a moderate level of adoption, operating efficiently making the hospital staff's work efficient and accurate. While employees recognized its usefulness, the rating implies that improvements in training and technical support are still needed to maximize its benefits. This study reinforces and expands the findings of [Campione and Liu \(2024\)](#), showing that training and technical support strongly shape system use and user perceptions. In the Philippine public hospital context, it extends their work by demonstrating that effective assistance not only improves confidence and efficiency but also sustains digital adoption in resource-limited environments.

Work Efficiency of Hospital Staff

The work efficiency of hospital staff, as perceived by the hospital staff, was assessed by three key dimensions, completion, accuracy of work and effective time management, as presented in Table 5.

Table 5. Work Efficiency of Hospital Staff

Dimensions	Mean	Descriptive Rating
Work Completion	3.26	Strongly Agree
Accuracy of Work	3.22	Agree
Effective Time Management	3.22	Agree
Mean of Means	3.23	Agree

Results show that work completion received the highest score and a rating of "Strongly Agree." This suggests that the IT system is most effective at helping staff finish their tasks and meet their daily operational goals. It also implies that the system has successfully streamlined workflows compared to manual processes. While slightly lower than work completion, accuracy of work and effective time management scores indicate that the IT system provides reliable support in reducing errors and helping staff organize their schedules more effectively. This indicates that the system was effectively adopted into operations, aligning with [Bayhaqi et al. \(2025\)](#), who emphasized the role of staff digital skills and infrastructure in successful system adoption and efficiency.

The overall mean for work efficiency indicated that respondents generally agreed that IT system is a positive contributor to their overall productivity and operational performance. The finding implies that hospital management can view IT system as more than technical tools—they are drivers of productivity and accuracy that justify continued investment and staff training. However, accuracy and effective time management dimensions suggested the need to strengthen data reliability features and minimize manual or repetitive processes to enhance overall efficiency. This supports the study where IT significantly improves the accuracy and efficiency on data processing and operational performance in organizational systems ([Kabir et al., 2025](#)).

Relationship Between IT System Adopted by the Government Hospital and Work Efficiency of Hospital Staff

To ensure the validity of the Spearman's Rank-Order Correlation, key assumptions were checked. As a non-parametric test, it does not require normal data but assumes a monotonic relationship. In this study, a positive monotonic relationship was observed—higher system usability corresponds to greater staff efficiency. Outliers are minimal and the Shapiro-Wilk test ($p < 0.05$) confirmed non-normality ([Pruekpramool et al., 2020](#)). Table 6 shows that all assumptions were met, supporting the appropriateness of using Spearman's Rank-Order Correlation.

Table 6. Spearman's Test Assumptions Checklist

Assumption	Requirement	Statistical Evidence	Result
Level of Measurement	Variables should be ordinal, interval, or ratio	All constructs measured using a 4-point Likert scale (ordinal)	Met
Related Pairs	Each participant must have paired observations	All 214 respondents provided complete data	Met
Independence of Observations	Each response must be independent	Data collected from 214 unique hospital staff	Met
Monotonic Relationship	Variables should exhibit a monotonic association	Preliminary scatterplots showed consistent increasing trends between IT adoption and work efficiency dimensions	Met
Normality (for test selection)	Normality not required for Spearman's rho	Shapiro-Wilk test indicated non-normal distributions:	Non-normality confirmed;

Assumption	Requirement	Statistical Evidence	Result
		- IT System Adoption: $W = 0.942, p < .001$ - Work Efficiency: $W = 0.951, p < .001$	Spearman's rho appropriate

Note: The Shapiro–Wilk test was conducted only to assess data distribution and justify the use of a non-parametric correlation test. Normality is not a formal assumption of Spearman's rank-order correlation (Eltehiwy & Abdul-Motaal, 2023).

Therefore, the relationship between the dimensions of the IT system adopted by the government hospital and staff's work efficiency was tested using Spearman's Rank-Order Correlation. In reference to the researchers' alternative hypothesis stating that there is significant relationship between the adoption of IT system and work efficiency of hospital staff, Table 7 presents the statistical results.

Table 7. Relationship Between IT System Adopted by the Government Hospital and Work Efficiency of Hospital Staff

IT System Adopted	Work Efficiency of Hospital Staff	Correlation Coefficient (r_s)	Interpretation	p-value	Interpretation
System Usability	Completion	.695	Strong Positive	<0.001	Highly Significant
	Accuracy of Work	.655	Strong Positive	<0.001	Highly Significant
	Effective Time Management	.671	Strong Positive	<0.001	Highly Significant
Accessibility	Completion	.770	Strong Positive	<0.001	Highly Significant
	Accuracy of Work	.694	Strong Positive	<0.001	Highly Significant
	Effective Time Management	.724	Strong Positive	<0.001	Highly Significant
Frequency of Use	Completion	.803	Very Strong Positive	<0.001	Highly Significant
	Accuracy of Work	.729	Strong Positive	<0.001	Highly Significant
	Effective Time	.777	Strong Positive	<0.001	Highly

Management

Significant

Note: According to [American Psychological Association \(2020\)](#), the guidelines explicitly prohibit reporting $p = 0.000$. Instead, very small p -values should be reported as $p < 0.001$ to avoid the misleading implication that the probability is exactly zero.

Spearman's rank order correlation and p -values were computed and revealed strong positive high significant relationship between IT system adopted by the government hospital and work efficiency dimensions. Therefore, the alternative hypothesis was accepted which indicates that there is a meaningful relationship between IT system adoption and work efficiency. System usability and accessibility showed a positive and strong association with work efficiency, indicating support to timely task completion, accurate work, and effective time management. These findings aligned with prior research showing that better system usability improves efficiency and user performance ([Cahill et al., 2025](#); [Cabaobao, Jr. et al., 2024](#)) and that when systems were easily accessible, staff spent more time on productive work ([Watson et al., 2025](#); [Wagan et al., 2025](#); [Caubang et al., 2025](#)). The current study not only confirms these earlier findings but also extends them by demonstrating that such usability–efficiency patterns hold true in the Philippine public hospital context, where resource constraints and recurring technical barriers are more pronounced. This suggests that even under less-than-ideal infrastructural conditions, system accessibility remains a critical factor associated with higher perceived efficiency, thereby reinforcing the broader applicability of usability-focused interventions across diverse healthcare settings.

The strongest relationship found between frequency of use and work completion indicates that more frequent system engagement significantly improves task efficiency. This finding aligns with prior studies and with STS Theory, which explains how the interaction between social components, such as staff skills and work practices, and technical components, jointly influences performance showing that greater frequency and more extensive use of IT are associated with better individual performance and improved work outcomes in organizational settings ([Vraňáková & Gyurák Babel'ová, 2025](#); [Faller et al., 2025](#)). The current study not only confirms these earlier findings but also extends them by demonstrating that the same socio-technical dynamics apply in the Philippine public hospital context. This suggests that even under limited infrastructural conditions, frequent IT system engagement remains strongly associated with improved task completion, thereby reinforcing the broader relevance of STS Theory in low-resource healthcare environments.

Challenges Encountered by Hospital Staff in the Adoption of IT System

Table 8 presents the common challenges encountered by hospital staff in adopting the IT system.

Table 8. Challenges Encountered by Hospital Staff in the Adoption of IT System

Indicator	Mean	Descriptive Rating
Internet or network connectivity issues	2.96	Agree
System downtime interrupts daily work	2.79	Agree
Requires more training to use properly	2.77	Agree
Technical problems affecting efficiency	2.72	Agree
Slow performance causing delays	2.66	Agree
Gap between design and actual workflow	2.63	Agree
Inadequate tech support response times	2.61	Agree

System updates without prior notice	2.59	Agree
System errors or “bugs” in work	2.59	Agree
Confusing or difficult navigation	2.56	Agree
Mean of Means	2.69	Agree

Across all indicators, hospital staff agree that there are challenges encountered in using the IT system, with internet connectivity identified as the most significant hurdle. Therefore, reliable internet access, stable power, and adequate training are critical factors influencing how effectively staff can use the system and carry out their work. This aligns with previous research on barriers faced by healthcare workers in adopting digital clinical technologies, where limited training, uneven access, and technical disruptions were reported to constrain staff efficiency and workflow integration (Rajan et al., 2016)

Despite the recurring technical barriers, the reported levels of work efficiency remained relatively high. This pattern may be explained by staff adaptation through learned workarounds, compensatory routines that minimize disruption, partial digitalization that still streamlines certain tasks, and resilient informal practices that sustain productivity even when technical challenges arise. These factors suggest that efficiency is not solely dependent on seamless IT performance but also on the organizational capacity to absorb and adapt to technological limitations, consistent with findings on healthcare workers’ ability to maintain performance under digital health constraints (Jeilani & Hussein, 2025).

Proposed Strategies to Enhance the Adoption of IT System

Table 9 presents the proposed strategies to improve work efficiency through effective IT system adoption. The expected outcomes of the proposed strategies are supported by previous studies, which shows that regular and proper use of the IT system, focusing on usability and accessibility, allows system modules to run smoothly, minimizes errors, and enables staff to quickly learn, confidently use, and improve workflow (Olakotan et al., 2025; Campione & Liu, 2024). Consistent with STS theory, this indicates that aligning technology and staff practices enhances overall work performance (Neto et al., 2025; Celestino et al., 2025)

Table 9. Proposed Strategies to Enhance the Adoption and Utilization of the IT System

Dimensions	Proposed Strategies	Expected Outcomes
System Usability	Make sure all system modules are well connected, simplify workflows and regularly check system for issues.	Modules run smoothly, errors are minimized, and staff can work more efficiently (Olakotan et al., 2025)
Accessibility	Provide simple user guides, step-by-step tutorials, and hands-on training sessions for staff.	Staff quickly learned the system, used it confidently, and performed tasks without constant support (Campione & Liu, 2024)
Frequency of Use	Introduce automated functions for daily tasks and provide brief training sessions for staff on using these features.	Repetitive tasks were reduced, errors are minimized, and staff performed their tasks confidently (Neto et al., 2025)

Work Completion	Maintain a prioritize task list, conduct regular progress checks, and use visual boards or dashboards to track outstanding tasks.	Staff stayed on top of their workload, unfinished tasks were minimized, and overall productivity improved. (Pejić Bach et al., 2024)
Accuracy of Work	Implement validation checks, maintain up-to-date data standards, and regularly review data accuracy.	Documentation errors were reduced and consistency in patient records was improved (Ghalavand et al., 2024)
Effective Time Management	Use digital tools to simplify information retrieval, organize workflows, and minimize time spent on manual reporting	Staff spend less time searching for information, avoid duplicates tasks, and focus more effectively to patient care and admin work (Jeilani & Hussein, 2025)

CONCLUSION

This study revealed that adoption of IT system in Philippine government hospital was generally high, with staff consistently integrating digital systems into their daily tasks. Work efficiency was also strong, as staff reported improvements in accuracy, task completion, and time management. Statistical analysis confirmed strong positive high significant relationship between IT system adopted by the government hospital and work efficiency dimensions. The primary challenge identified was internet connectivity, which limited seamless system use; however, staff maintained effective performance through training, technical assistance, and adaptive practices. Based on the findings of the study, strategies enhancing the adoption of IT system were proposed to further improve work efficiency of hospital staff.

The findings of the study refine STS Theory in the government hospital setting by showing that usability, accessibility, and frequency of IT system use are practical expressions of socio-technical alignment. This demonstrates how technical features and human practices converge to sustain efficiency and resilience in resource-constrained environments. By evidencing that system usability and accessibility directly shape staff performance, the study extends STS Theory to highlight the importance of aligning digital tools with organizational workflows in public-sector healthcare. The practical implications of this study point to several concrete action steps for hospital management and policymakers. Improving connectivity infrastructure is essential to overcome the most significant technical hurdle. Institutionalizing user training ensures that staff can fully leverage system capabilities, while strengthening help-desk support provides timely assistance for operational continuity. Aligning system design with existing workflows enhances usability and reduces redundancy, and integrating digital efficiency into hospital governance and sustainability planning ensures that IT adoption becomes a long-term strategic priority. Collectively, these measures position IT systems not only as technical solutions but as integral components of effective and sustainable healthcare delivery in Philippine government hospitals.

LIMITATION AND FURTHER RESEARCH

There are several limitations that should be acknowledged in this study. First, the research was conducted in a single government hospital which limits the applicability of the findings to other healthcare institutions. Second, the use of a self-administered survey questionnaire may have introduced response bias, as the results relied on participants' personal perceptions, level of understanding, and honesty. In addition, the study examined the general adoption of IT system rather than specific system or technical features, which may have different levels of influence on

employees' work efficiency. The cross-sectional design of the study also captured data at only one point in time, making it difficult to determine whether increased adoption of IT system leads to sustained improvements in work efficiency over the long term.

Future research may build on these findings by examining specific IT applications used in hospital operations and administrative processes and their direct effects on employee work efficiency. Researchers are encouraged to include objective performance indicators, such as processing time, error reduction, or actual system usage, to support self-reported data. Further studies may also employ longitudinal research designs and qualitative methods to determine the long-term impact of IT system adoption and its influence on staff work efficiency.

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