JISS Journal of Indonesian Social Science

Vol. 6, No. 5, May 2025
E-ISSN:2723 – 6692
P-ISSN:2723– 6595
http://jiss.publikasiindonesia.id/

The Influence of Project Management Information System, Human Resource Quality, and Employee Performance on The Effectiveness of Construction Services at PT XYZ

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KEYWORDS

Management Information System, Construction Project, Human Resource Quality, Employee Performance, Service Effectiveness

ABSTRACT

In the construction industry, service effectiveness is greatly influenced by the implementation of project management information systems, the quality of human resources (HR), and employee performance. PT XYZ faces various challenges in project management, such as delays, incompatibility of planning with realization, and lack of an integrated information system to support fast and accurate decision-making. This study aims to analyze the influence of project management information system, human resource quality, and employee performance on the effectiveness of construction services at PT XYZ. The research method used is a quantitative approach with a survey method. Data was collected through a questionnaire involving 86 respondents from various divisions within the company. Data analysis was carried out using the path analysis method to identify direct and indirect relationships between independent variables and bound variables. The results of the study show that the project management information system has a significant effect on employee performance and the effectiveness of construction services. In addition, good quality of human resources contributes to improving the effectiveness of construction services through improving employee performance. The implication of this study is that construction companies need to adopt web-based information systems to improve efficiency in project management. In addition, improving the quality of human resources through employee training and competency development is an important factor in achieving optimal construction service effectiveness.

INTRODUCTION

Facing competition in the global era, companies are required to work more efficiently and effectively. Increasingly fierce competition has forced construction companies to enhance their competitiveness to ensure their survival. Nearly all companies aim to maximize profits and corporate value while also improving the welfare of both owners and employees. Employees play a crucial role in determining a company's progress or decline. To achieve corporate goals,

companies need employees who meet their requirements and are capable of carrying out assigned tasks (Lestari et al., 2021; Qodariah, 2020; Sutriani et al., 2018; Suwignya et al., 2018).

With the rapid development of information technology, particularly internet technology, various fields of work have become easier due to improved accessibility, reduced distance constraints, and time efficiency. The increasing accessibility of the internet has also encouraged the construction industry, including the government sector, to adopt its usage.

Construction development across various sectors has been accelerated by the government to promote prosperity and public welfare. According to kppip.go.id (2024), there are approximately 223 construction projects, 37 of which have a significant economic impact. One of the key phases of project management is the planning phase, where a project manager is responsible for organizing tasks, budgeting, estimating project duration, and determining the necessary resources. However, challenges in this phase are often related to time constraints and quality control.

Project managers often lack specialized tools for planning activities and budgeting, relying instead on estimates using basic tools, which can be time-consuming (Abduh, 2017; Pebriyanti, 2017; Wachdijono et al., 2021). In a project, every procurement activity is led by a project manager (owner), who must possess managerial skills to oversee operations. Additionally, a project manager is responsible for multiple tasks, from the pre-tender process to project handover to service providers.

Today, various software solutions are available to assist project managers (owners or procurement officers) in monitoring and supervising projects both offline and online. The need for transparent and rapid access to information is crucial, especially in specific circumstances. This necessity has presented challenges for project owners and consultants in controlling project work. To address these challenges, a project management information system (PMIS) is essential for facilitating project management processes. A PMIS is an information system that consists of tools and techniques used to collect, integrate, and distribute outputs from project management processes.

This aligns with a study conducted by Al Gheffira et al. (2019), which found that implementing a progress input feature in a new system led to well-organized project management. Similarly, research by Etrariadi & A'inunisya (2023) demonstrated that the development of the Diskopindag Kota Malang project management website significantly improved project execution speed and accuracy. Furthermore, a study by Rizaky et al. (2015) revealed that a web-based PMIS initially developed as a localhost system could be expanded into an online system to facilitate fast and efficient communication between project stakeholders. Additionally, Ifta Taqqia & Anggraeni (2022) found that implementing a management information system (SiMakmur) at PT Petrokimia Gresik had a positive and significant impact on employee performance within the Project Agrosolution unit.

Based on the research gap identified, this study aims to design a web-based project management information system for construction projects that can automate service procurement, project planning, cost control, project activities, and reporting. Additionally, the study seeks to develop an information system using a prototype method to optimize project management and oversight.

This approach aligns with advances in information and communication technology, particularly internet and web-based technologies, which enable fast and accurate data processing. In today's society, there is an increasing demand for fast, process-oriented institutional performance to provide excellent service to customers—including individuals, stakeholders, and especially the general public.

Therefore, future management competence and reliability will not only be assessed based on the ability to utilize online technology for project administration but also on the ability to recognize its organizational impacts. In other words, management's ability to leverage information for managerial functions will determine the success of project execution in both corporate and contractor institutions.

To achieve these goals, companies require effective management roles to build and sustain their business. Management plays a key role in utilizing human and other resources to achieve company objectives. These essential resources include Man (human resources), Material (materials), Machine (equipment), Method (work processes), Money (capital), and Market (demand) (Azara, 2020). Human resource management (HRM) is particularly crucial for efficiently managing, organizing, and utilizing employees to ensure productivity, effectiveness, and efficiency, including in the construction industry.

One of the major challenges in Indonesia's construction sector, according to Afandi (2021), is the lack of skilled and professional human resources, both in terms of technical construction expertise and managerial capabilities. Several indicators highlight significant barriers to SME development in Indonesia's construction industry, such as the lack of sustainable entrepreneurial development and limited knowledge-based skills for value-creation-oriented business operations (Bairizki, 2020; Basuki, 2023; Marthalia, 2023; Subyantoro & Suwarto, 2020).

A common problem in the field today is poor human resource management in contractor companies, which often leads to project execution deviations from initial plans. Some companies experience declining profits despite having highly educated employees, indicating a decrease in employee performance. Performance indicators related to project completion timelines frequently fall below company targets. By empowering high-quality human resources, construction project management activities can be optimized to meet targets and ensure timely project completion (Yuwono et al., 2021).

As modernization progresses, construction companies face increased public scrutiny, particularly regarding service quality. The industry is expected to provide efficient services that align with the principles of good governance, while construction clients demand high-quality service from PT XYZ. Thus, the role of administration in guiding and regulating all service activities toward achieving corporate goals becomes critical.

Based on these phenomena and past research, this study aims to analyze how advancements in hardware and software impact the quality of information generated by a management information system. The use of a PMIS contributes to user performance in decision-making processes, just as information plays a crucial role in daily work activities and human life.

Given this background, this study is highly relevant. PT XYZ was chosen as the research object because it is one of the largest companies in West Java, specializing in property development and subsidized housing projects. The company struggles with data management for project progress tracking, as records are still maintained manually on paper and lack proper coordination.

Several of PT XYZ's construction projects have been delayed this year, including the Way Sekampung Dam in Lampung, Jragung Dam in Central Java, Temet Dam in East Nusa Tenggara, Kuningan East Ring Road in West Java, Brebes-Tegal Ring Road in Central Java, and the optimization of the city wastewater pipeline network in Medan, North Sumatra. By implementing an integrated and easily accessible database system, PT XYZ can store all project-related information, enabling better coordination among project managers (owners/procurement officers) and all involved parties. Based on these challenges, this study explores the topic: "The Influence

of Project Management Information Systems, Human Resource Quality, and Employee Performance on the Effectiveness of Construction Services at PT XYZ."

This study aims to determine whether there is an influence of project management information systems on employee performance and the effectiveness of construction services at PT XYZ. In addition, this research also aims to analyze whether the quality of human resources (HR) affects construction information systems, construction employee performance, and the effectiveness of construction services at PT XYZ. Furthermore, this study seeks to determine whether employee performance has an impact on the effectiveness of construction services at PT XYZ.

This research is expected to contribute to PT XYZ in implementing a web-based project management system within its environment. Additionally, it can facilitate service providers in reporting on construction services and enhance knowledge about the utilization of information technology in project management, particularly in the construction sector.

Employee performance in public sector institutions, particularly in regional government agencies, is increasingly under scrutiny due to rising public expectations for transparency, efficiency, and service quality. However, many local agencies struggle with optimizing performance outcomes due to internal factors such as poor discipline, lack of motivation, and inadequate supervision. These challenges hinder the realization of good governance and diminish public trust in government institutions. In the context of the Population and Civil Registration Office in Deli Serdang Regency, these issues are particularly prominent and require a deeper analytical approach.

Improving employee performance in government offices is not only an organizational priority but also a national imperative, considering its direct impact on service delivery to citizens. As public institutions face increased demand for real-time, quality-based services, internal factors such as motivation, work discipline, and supervision become central to administrative reform. Without addressing these, efficiency and effectiveness in public service cannot be achieved.

Specifically, in the Population and Civil Registration Office, performance shortcomings affect the issuance of essential civil documents—birth certificates, ID cards, and family cards—which are fundamental to accessing various public services. The urgency to investigate the determinants of performance within this office lies in the need to foster accountability and elevate service reliability, both of which are critical for social inclusion and legal identity.

Several prior studies have investigated the role of motivation and supervision on performance. For instance, Sudirman et al. (2021) found that employee motivation significantly enhances job performance in local government institutions, especially when supported by clear reward mechanisms. Similarly, Yuliana (2020) emphasized that discipline serves as a mediating factor between supervision and performance, where consistent disciplinary enforcement strengthens organizational output.

In the context of population administration services, Rahayu (2019) demonstrated that regular supervision combined with incentive-based motivation contributed to a measurable increase in the accuracy and speed of civil document processing. However, these studies were mostly conducted in metropolitan areas, where digital infrastructure and staff resources are more advanced than in semi-rural regions like Deli Serdang.

Meanwhile, Hasibuan (2021) underlined that while motivation and supervision are critical, their effect is magnified when paired with strategic leadership and cultural alignment, a dynamic often missing in smaller district offices. These findings collectively indicate a need for more

localized research focused on administrative units operating under different socioeconomic conditions.

While motivation, discipline, and supervision have been independently examined in numerous studies, few have integrated these three variables within the specific context of regional civil registration offices in Indonesia. Additionally, there is a lack of empirical data from second-tier regencies such as Deli Serdang, where infrastructure limitations, bureaucratic complexity, and socio-political factors create distinct organizational dynamics. This study addresses that void by offering a comprehensive model that tests the simultaneous influence of the three variables on employee performance in a critical public service institution.

The novelty of this study lies in its empirical approach to analyzing motivation, discipline, and supervision collectively within the civil registration service domain of a regency-level office. It not only tests their individual and combined effects on performance but also contextualizes these findings in an under-researched area—public civil administration in semi-urban Indonesia. The study bridges behavioral management theory with real-world governance practice, offering both theoretical refinement and practical application.

The primary objective of this research is to assess the extent to which motivation, work discipline, and supervision influence the performance of employees at the Population and Civil Registration Office of Deli Serdang Regency. The study seeks to determine both the direct and indirect effects of each variable and provide evidence-based recommendations for managerial improvements.

Practically, this study provides strategic insights for local government leaders to design performance-enhancing interventions that are realistic, measurable, and sustainable. The findings are expected to guide improvements in personnel management through more effective motivational strategies, structured disciplinary policies, and proactive supervisory systems. Academically, the research contributes to the field of public sector human resource management, particularly within the context of decentralized governance in Indonesia.

RESEARCH METHOD

Research Approach

A research approach is essential in a study. Research must be structured based on research methods to achieve its objectives. Arikunto states that a research method is a way used by researchers to collect their research data (Arikunto 2019, 2019).

This study employs a descriptive research method with a quantitative approach. The choice of a quantitative approach aims to summarize and relate data Sugiyono (2019) while also attempting to determine whether one variable can influence another (causality).

Sampling Technique

1. Population

A population is a collection of all elements in the form of events, things, or people that share similar characteristics and become the focus of a researcher, as it is considered a research universe. According to Sugiyono (2019), a population is a generalization area consisting of objects/subjects with specific qualities and characteristics determined by the researcher for study, from which conclusions are drawn. In this study, the population consists of construction employees at PT XYZ.

2. Sample

A sample is a portion of the total population that possesses specific characteristics. This study employs a Non-Probability Sampling technique using Purposive Sampling. According to Sugiyono (2019), Non-Probability Sampling is a sampling technique that does not provide equal

opportunities for every element or member of the population to be selected as a sample. Meanwhile, Purposive Sampling is a technique for determining a sample based on specific considerations.

The number of construction employees at PT XYZ from 2020 to 2024 is 66. In this study, there is one variable that involves PT XYZ consumers as respondents, namely service effectiveness. The number of respondents used for the service effectiveness variable is calculated as 5 x 4 = 20 respondents. Thus, the total number of samples in this study is 86 respondents.

RESULTS AND DISCUSSIONS

Research Results

1. Measurement Model (Outer Model)

The evaluation of the measurement model is tested using several indicators, namely convergent validity, discriminant validity, and reliability. Below are the results of the measurement model using the PLS Algorithm.

a. Convergent Validity Test

Convergent validity is a test that shows the relationship between reflective items and their latent variables. An indicator is considered valid if the loading factor value is > 0.7.

Table 1 Convergent Validity Test

	Indicator	*Loading Factor*	Description
Management Information System	$X1_1$	0.756	Valid
	$X2_2$	0.731	Valid
	$X3_3$	0.723	Valid
	$X4_4$	0.710	Valid
	$X5_5$	0.732	Valid
	$X6_6$	0.791	Valid
	$X7_7$	0.772	Valid
	$X8_8$	0.777	Valid
Human Resource Quality			
	$X2_1$	0.723	Valid
	$X2_2$	0.715	Valid
	$X2_3$	0.726	Valid
	Lanjutan		
	Indikator	***Loading Factor***	**Keterangan**
Employee Performance	$X2_4$	0.770	Valid
	$X3_1$	0.789	Valid
	$X3_2$	0.809	Valid
	$X3_3$	0.758	Valid
	$X3_4$	0.752	Valid
	$X3_5$	0.790	Valid
	$X3_6$	0.772	Valid
Service Effectiveness	Y_1	0.714	Valid
	Y_2	0.784	Valid
	Y_3	0.726	Valid
	Y_4	0.701	Valid

Based on Table 1, the resulting loading factor values indicate that the indicators for training, workload, and work environment on employee performance have loading factor values greater than 0.7. Thus, these indicators have met the convergent validity test.

b. Discriminant Validity Test

Discriminant validity relates to the principle that different construct measures should not be highly correlated. Discriminant validity occurs when two different instruments measuring two predicted uncorrelated constructs produce scores that are indeed uncorrelated. The discriminant validity test in this study uses the cross-loading values. An indicator is considered to meet discriminant validity if its cross-loading value for its variable is the highest compared to other variables.

Table 2 Cross Loading

Indicator	SIM	KS	KK	EP
$X1_1$	**0.756**	0.647	0.600	0.726
$X1_2$	**0.731**	0.653	0.590	0.525
$X1_3$	**0.723**	0.548	0.528	0.747
$X1_4$	**0.710**	0.519	0.510	0.611
$X1_5$	**0.732**	0.622	0.543	0.735
$X1_6$	**0.791**	0.694	0.787	0.581
$X1_7$	**0.772**	0.556	0.736	0.726
$X1_8$	**0.777**	0.527	0.734	0.525
$X2_1$	0.585	**0.723**	0.715	0.747
$X2_2$	0.619	**0.715**	0.764	0.611
$X2_3$	0.622	**0.726**	0.765	0.617
$X2_4$	0.586	**0.770**	0.774	0.717
$X3_1$	0.633	0.765	**0.789**	0.698
$X3_2$	0.595	0.725	**0.809**	0.724
$X3_3$	0.580	0.784	**0.758**	0.599
$X3_4$	0.606	0.773	**0.752**	0.714
$X3_5$	0.662	0.834	**0.790**	0.784
$X3_6$	0.663	0.798	**0.772**	0.726
Y1	0.747	0,702	0.658	**0.714**
Y2	0.573	1,575	0.709	**0.784**
Y3	0,804	1,719	0.615	**0.726**
Y4	0,778	0,667	0.679	**0.701**

Source: Processed Data, 2024

Based on the cross-loading values, it can be seen that all indicators forming each variable in this study (bolded values) have met discriminant validity, as they have the highest outer loading values for their respective variables and not for other variables.

c. Reliability Test

In this study, the reliability test was conducted using Cronbach's alpha and composite reliability values in SmartPLS. A variable is considered reliable if the Cronbach's alpha value is above 0.7, although a value of 0.6 is still acceptable, and the composite reliability value is above 0.7.

Table 3 Reliability Test

Variable	*Cronbach's Alpha*	*Composite Reliability*	Description
Management Information System	0.875	0.903	Reliable
Human Resource Quality	0.912	0.929	Reliable
Employee Performance	0.930	0.940	Reliable
Service Effectiveness	0.892	0.955	Reliable

Source: Processed Data, 2024

Based on Table 3, the results show that the Cronbach's alpha values for the variables of training, workload, and work environment on employee performance are above 0.6, and the composite reliability values are above 0.7. This means that all these variables are considered reliable.

2. Structural Model (Inner Model)

After conducting the outer model test, it was found that the measurement model (outer model) demonstrated a good level of validity and reliability, and the data also proved to be valid and reliable. The next step is to conduct the inner model test.

The inner model or structural model test is carried out to examine the relationships between constructs, significance values, and the R-Square value of the research model.

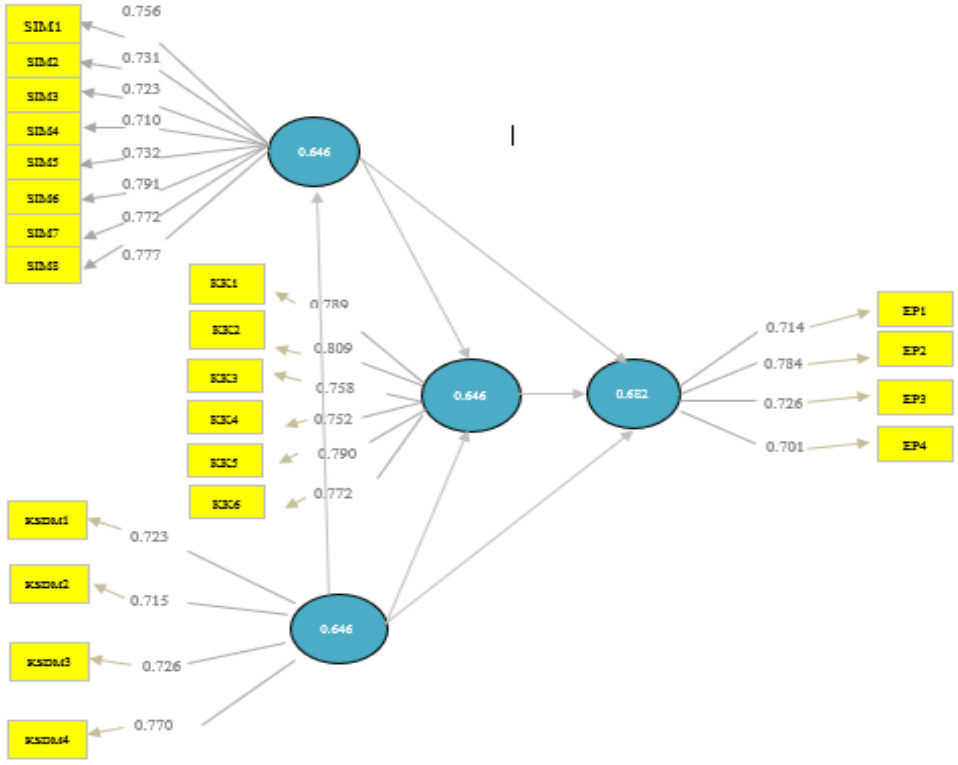

Figure 1 Structural Model

Source: Processed Data, 2024

The evaluation of the PLS structural model begins by examining the R-square value for each dependent latent variable. The table below presents the R-square values using PLS.

Table 4 R-Square

Variable	R *Square*	R *SquareAdjusted*
Service Effectiveness	0.682	0.677

Source: Processed Data, 2024

Based on the table above, the Adjusted R-square value for the Service Effectiveness variable is 0.677. This means that 67.7% of the Employee Performance variable is explained by the training, workload, and work environment variables, while the remaining 32.3% is explained by other variables not included in this study.

3. Hypothesis Testing

The basis for direct hypothesis testing is the path coefficients output, where the significance of the relationship is determined by the P-Values. If P-Values < 0.05, it indicates a significant effect between the variables.

For indirect hypothesis testing, the Specific Indirect Effect output is used. If P-Values < 0.05, it indicates an indirect effect.

Statistical testing for each hypothesized relationship in PLS is performed using the bootstrapping method. Below are the results of the PLS bootstrapping analysis.

Table 5 Path Coefficients

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Management Information System → Employee Performance	0.804	0.799	0.049	16.407	0.000
Human Resource Quality → Employee Performance	0.286	0.283	0.123	2.328	0.020
Human Resource Quality → Management Information System	0.412	0.419	0.078	5.277	0.000
Project Management Information System → Employee Performance and Construction Service Effectiveness	**0.491**	0.501	0.050	9.954	0.000
Human Resource Quality → Construction Information System, Construction Employee Performance, and Construction Service Effectiveness	**0.587**	0.563	0.053	10.707	0.000
Employee Performance → Service Effectiveness	**0.639**	0.254	0.054	4.682	0.000

Source: Processed Data, 2024

Table 6. Specific Indirect Effect

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Management Information System, Human Resource Quality, and Employee Performance → Service Effectiveness	**0.465**	0.463	0.094	4.972	0.000

Source: Processed Data, 2024

Based on hypothesis testing using the bootstrapping method in SmartPLS, the results are as follows:

a. First Hypothesis Testing

The first hypothesis states that the project management information system affects employee performance and the effectiveness of construction services. This can be seen from the Original Sample value of 0.491, which means that training has a positive effect on employee performance by 0.491 and is significant because the P Value is less than 0.05, which is 0.000. Thus, it can be interpreted that the project management information system variable affects employee performance and the effectiveness of construction services, and the hypothesis is accepted.

b. Second Hypothesis Testing

The second hypothesis states that human resource quality affects the construction information system, construction employee performance, and the effectiveness of construction services. This can be seen from the Original Sample value of 0.587, which means that human resource quality affects the construction information system, construction employee performance, and the effectiveness of construction services by 0.587 and is significant because the P Value is less than 0.05, which is 0.000. Thus, it can be interpreted that there is an effect of human resource quality on the construction information system, construction employee performance, and the effectiveness of construction services, and the hypothesis is accepted.

c. Third Hypothesis Testing

The third hypothesis states that employee performance directly affects service effectiveness. This can be seen from the Original Sample value of 0.639, which means that employee performance has a positive effect on service effectiveness by 0.639 and is significant because the P Value is less than 0.05, which is 0.639. Thus, it can be interpreted that the employee performance variable directly influences the service effectiveness variable, and the hypothesis is accepted.

Discussion

The Influence of Project Management Information System on Employee Performance and Construction Service Effectiveness at PT XYZ

The first hypothesis states that the Management Information System directly influences Employee Performance and the effectiveness of construction services at PT XYZ. This is evident from the Original Sample value of 0.491, meaning that training positively affects employee performance by 0.491 and is significant because it has a P-Value < 0.05, specifically 0.000. Thus, the hypothesis that the Project Management Information System influences employee performance and construction service effectiveness is accepted.

Based on the research findings, the influence of the Management Information System (MIS) does not produce a significant impact on employee performance at PT XYZ. This is due to challenges such as high initial implementation costs and limited technological resources. This study analyzes the positive impact of MIS and strategies to overcome these challenges, focusing on system integration, data analysis, and information security. The results indicate that MIS has the potential to transform PT XYZ's operational paradigm toward sustainable growth in the digital era.

This finding aligns with research by Apriyanto (2018), which shows that the performance of an information system project improves with support from an experienced project management team and good project management processes. Effective collaboration and communication between the project team and stakeholders, along with a comprehensive needs analysis, can minimize requirement changes during development, thereby improving project performance. Additionally, a capable project team with sufficient experience, clear role and responsibility definitions, and strong internal communication significantly enhance the performance of information system projects in Indonesia.

However, this finding contrasts with research conducted by Nia Karim, Rizan Machmud, and Agus Hakri Bokingo (2022), which concluded that Management Information Systems significantly impact employee performance in a company. The study found that a better Management Information System leads to improved employee performance. The coefficient of determination (R^2) value of 0.573 (57.3%) indicates that MIS contributes significantly to employee performance. Therefore, the research hypothesis is validated and accepted.

The long-term benefits of MIS adoption at PT XYZ are clearly visible. By leveraging this technology, PT XYZ can fundamentally transform its operations—from inventory management to market analysis, customer service, and product development. This expansion enhances PT XYZ's capacity for growth and sustainability in an increasingly competitive industry.

Despite its advantages, MIS implementation at PT XYZ also faces several challenges. The primary challenge is the initial cost of implementation and system integration, which may strain the company's limited resources. Additionally, cultural and behavioral changes within the organization are necessary to ensure that MIS adoption is not only implemented but also optimized by all employees.

To address these challenges, PT XYZ can adopt a phased approach to MIS implementation. This means starting with the most critical business needs, such as inventory management or digital marketing, before gradually expanding its use. To maximize the benefits of MIS, PT XYZ must invest in adequate technological infrastructure and provide employee training for efficient system utilization. Through strategic internal capacity development and collaboration with experienced MIS solution providers, PT XYZ can mitigate risks and optimize its return on technology investments. Although initial implementation costs are a challenge, the long-term benefits of MIS adoption will help PT XYZ remain competitive and sustainable in the evolving construction industry.

These findings are consistent with the research by Meydian (2020), which demonstrated that a Project Management Information System effectively manages project data, project progress, budget estimates, customer data, employee records, material inventories, tasks, and payments. The implementation of a Project Management Information System simplifies employee tasks and enhances service effectiveness by allowing easy, fast, accurate, and automatically recorded project data management.

Information systems have become an essential part of modern business operations, especially in the rapidly evolving digital era. These systems play a crucial role in data management, efficiency

improvement, and business performance optimization. Additionally, information systems significantly impact employee performance within an organization. A well-implemented system can help employees work more efficiently and productively, improve work quality, and provide faster and easier access to essential information.

Conversely, poorly implemented information systems can hinder employee performance and reduce organizational productivity. Therefore, organizations must consider various factors affecting MIS influence on employee performance, including technological capabilities, infrastructure, training, and an innovation-supportive organizational culture.

To improve organizational performance in the future, information technology must evolve beyond a mere support tool into a strategic asset that enhances service effectiveness. The integration of information systems in workflows has ushered in a new era in workplace development. However, this advancement has not been matched by improvements in human resources, which are key to employee performance success in organizations.

When work is executed according to proper planning, effective information systems enhance productivity, service quality, and decision-making (Hermawan et al., 2018; Saputri et al., 2023; Septuri, 2021). A poorly managed system can hinder organizational effectiveness. Research by Dian (2021) confirms that Management Information Systems positively and significantly impact work effectiveness. Therefore, when Management Information Systems are well-executed, employee effectiveness improves accordingly.

H1: Management Information Systems influence Employee Performance and Construction Service Effectiveness at PT XYZ.

The Influence of Human Resource Quality on Construction Information Systems, Construction Employee Performance, and the Effectiveness of Construction Services at PT XYZ

The second hypothesis states that human resource quality affects construction information systems, construction employee performance, and the effectiveness of construction services. This can be seen from the Original Sample value of 0.587, which means that the Management Information System, Human Resource Quality, and Employee Performance indirectly influence Service Effectiveness by 0.587 and are significant because they have a P-value < 0.05, specifically 0.000. Thus, it can be interpreted that there is an influence of human resource quality on the construction information system, construction employee performance, and the effectiveness of construction services, and the hypothesis is accepted.

The research findings align with a study conducted by Ilham et al. (2023), which showed that a Systematic Literature Review indicates a positive impact of the Management Information System (MIS) on employee performance. MIS enables organizations to improve efficiency and human resource productivity by providing easy access to accurate and timely information needed by employees and ensuring service effectiveness in carrying out their duties effectively. Additionally, MIS facilitates better decision-making processes, allowing employees to make choices based on reliable data.

The Management Information System significantly impacts organizational performance. By integrating various operational aspects such as inventory management, finance, production, and human resources, MIS supports management in monitoring overall organizational performance and identifying areas that need improvement. Research shows that MIS contributes positively to operational efficiency, product or service quality improvement, increased organizational productivity, and reduced operational costs. Moreover, MIS plays a crucial role in strengthening customer relationships and enhancing customer satisfaction.

Information technology plays a central role in modern business, enabling companies to improve operational efficiency, make better decisions, and create competitive advantages. However, the success of IT implementation depends not only on technology itself but also on the right business strategy and the organization's ability to manage change. A critical business strategy in adopting IT is focusing on business needs by thoroughly understanding business processes and using technology to enhance operational efficiency and effectiveness (Alhadi, 2022; Ilham, 2022).

These challenges cause disruptions in public service delivery, making it suboptimal. Due to these constraints, employees struggle to transition to digital technology and cannot fully optimize digital applications, leading to ineffective services. Furthermore, the available human resources (HR) have not fully acquired the necessary skills and expertise to address these challenges.

In addition, in the context of service environments at the professional level, it is becoming increasingly clear how crucial human resource development is. PT XYZ can provide better public services with skilled, knowledgeable, and highly committed employees. This demonstrates that a professional approach to human resource management must be implemented from recruitment to continuous employee development. This study also shows that the work culture at PT XYZ should be inclusive and collaborative. Creating a productive and motivating workplace requires a culture that supports learning, innovation, and professional growth among employees.

H2: There is an influence of human resource quality on the construction information system, construction employee performance, and the effectiveness of construction services at PT XYZ.

The Influence of Employee Performance on the Effectiveness of Construction Services at PT XYZ

The third hypothesis states that employee performance directly affects service effectiveness. This can be seen from the Original Sample value of 0.639, meaning that Employee Performance has a positive effect on Service Effectiveness by 0.639 and is significant because it has a P-value < 0.05, specifically 0.639. Thus, it can be interpreted that the Employee Performance variable directly affects the Service Effectiveness variable, and the hypothesis is accepted.

The research findings align with a study conducted by Etrariadi & A'inunisya (2023), which found that the development process of a project management website impacts employee performance and service effectiveness. The Diskopindag of Malang City used the agile scrum method efficiently and within a relatively short time. By aligning with the objectives stated in project management goals, the study demonstrated the success of accelerating project management processes.

In this era of globalization, the rapid advancement of knowledge, technology, and the economy has accelerated changes in all aspects of life, shaping a more advanced mindset in society and increasing public demand for optimal services. To anticipate the impact of these changes and developments, every organization must enhance its role and capabilities in all aspects to achieve its goals.

Furthermore, the rapid development of science, technology, and communication requires human resources with high competence and knowledge to remain competitive and effectively carry out their primary functions and duties. Without highly professional human resources, it is difficult to expect an organization to function efficiently.

Given the significance and complexity of these tasks and functions, Hanadya et al. (2022) emphasize that employees must possess knowledge, skills, and good attitudes in executing their duties and responsibilities. Employee performance is crucial, as it directly contributes to the delivery of high-quality services. Therefore, improving the quality of human resources should be

carried out in a structured, targeted, and continuous manner to enhance capabilities and professionalism.

Additionally, high employee performance leads to a strong commitment to completing tasks efficiently, effectively, and productively according to their respective responsibilities. Performance can be viewed as both a process and an outcome. It reflects how work is carried out to achieve results. However, the outcome itself also represents performance. According to Agus & Fadli (2022), performance is "the result of an employee's work, a management process, or an entire organization, where the work outcome must be demonstrated with concrete and measurable evidence compared to predetermined standards."

At PT XYZ, employee performance has not fully met expectations, which affects the quality of services provided. Employees are expected to work optimally to ensure high-quality service, but in reality, these expectations have not been met. Some employees lack a strong sense of responsibility toward their work. For instance, employees should remain productive during working hours, yet some fail to do so, indicating a weak work ethic and ineffective task completion.

Furthermore, weak supervision by management negatively impacts employee performance. Poor employee performance leads to suboptimal service quality provided to the public. Therefore, employee performance is closely related to service quality. From the analysis, it can be concluded that if employee performance is good, it will result in high-quality service.

H3: There is no significant influence of employee performance on the effectiveness of construction services at PT XYZ.

Conclusion

Based on the research findings, several key conclusions can be drawn. First, the Project Management Information System (PMIS) has a positive influence on employee performance, with a path coefficient of 0.491 and a significance value of $p < 0.05$. However, its influence on the effectiveness of construction services is not very dominant due to challenges such as high initial implementation costs and limited technological resources. The effectiveness of PMIS can be improved with strong management support, experience in project management, and good communication systems among project teams and stakeholders. Although PMIS plays a role in enhancing work efficiency, its implementation has not been fully optimized due to technological and cost constraints. Second, the quality of Human Resources (HR) has the most dominant influence, with a path coefficient of 0.587 and a significance value of $p < 0.05$. Highly competent HR with good technological skills can utilize PMIS optimally, positively impacting the effectiveness of construction services. Therefore, increasing training and developing employee skills are crucial factors in ensuring that PMIS can be maximized to improve employee performance and service effectiveness. Third, employee performance directly affects the effectiveness of construction services, with a path coefficient of 0.639 and a significance value of $p < 0.05$. The key factors influencing employee performance include work motivation, experience, technical skills, and technological support. A significant improvement in employee performance will enhance the effectiveness of construction services, as more productive workers can complete projects efficiently and on time.

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