



The Effect of Using Information Technology on Employee Performance Through Employee Motivation at the Surabaya City Library and Archives Service

Pudji Astuti^{1*}, Andre Dwijanto Witjaksono², Anang Kistyanto³

¹Department of Management, Universitas Negeri Surabaya, Surabaya, Indonesia

Abstract

The aims of this study to analyze the influence of (1) the use of information technology on work motivation, (2) the use of information technology on employee performance, (3) employee work motivation on employee performance, and (4) the use of information technology on employee performance mediated by motivation work of employees of the Surabaya City Library and Archives Service. This research is explanatory research. The population used in this research were employees of the Surabaya City Library and Archives Service as a sample of 195 employees. The research was carried out by providing a questionnaire that represented the research variables. Data obtained was analyzed using the SEM (Structural Equation Model) method in AMOS 21 software. The results obtained from this research are (1) there is an influence of the use of information technology on work motivation, (2) there is an influence of the use of information technology in employee performance, (3) there is an influence of employee work motivation on employee performance, and (4) the influence of the use of information technology on employee performance is not mediated by the work motivation of employees of the Surabaya City Library and Archives Service.

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Correspondence:

Pudji Astuti
(fatraviohotdog@gmail.com)

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1. INTRODUCTION



The Industrial Revolution 4.0 has accelerated digital transformation across public services, including libraries, requiring the integration of information technology to enhance efficiency and service quality. Modern librarians are expected to actively utilize digital systems to meet evolving information demands and improve public service delivery (Asmosatunah & Adiningrat, 2020). In Indonesia, this transformation is reflected in initiatives such as Surabaya's development of an extensive library network supported by the SIPUS system, which digitizes core operations and strengthens service integration (Tanuwidjaja et al., 2025; Wahyudi et al., 2024). Such systems are intended to streamline workflows, improve accuracy, and support large-scale literacy programs, particularly in community-based reading services (Fahrizandi, 2020).

From a human resource perspective, work motivation plays a crucial role in determining employee performance (Anggraini, 2022; Musran et al., 2019; Shintia & Riduwan, 2021). Motivation reflects the internal drive that encourages employees to perform tasks effectively, while performance represents the achievement of work targets and organizational goals (Hammad et al., 2025; Praditya et al., 2020). Empirical studies consistently show that motivation significantly influences performance outcomes

(Sanclair et al., 2024; Triratnawati & Putri, 2013). At the same time, the adoption of information technology has been shown to enhance both motivation and performance, as employees become more efficient and engaged when supported by appropriate digital tools (Galigo et al., 2023; Zainuddin et al., 2018). Furthermore, research indicates that digital transformation in public organizations can directly and indirectly improve performance through increased motivation (Hammad et al., 2025).

However, the impact of technology is not always uniform, as it depends on organizational readiness, user competence, and system suitability (Handayani et al., 2018; Juliningrum & Sudiro, 2013). Some studies highlight that technology-driven performance improvements are contingent on motivation, organizational support, and work environment factors (Malloy, 2025; Saputro et al., 2020; Salsinha & Lukman, 2024). Others emphasize the importance of system fit and user capability, noting that inadequate digital literacy can hinder the effectiveness of technology implementation (Haq et al., 2022; "Rancang Bangun Sistem Informasi Taman Bacaan Masyarakat," 2024). Additionally, while some research confirms that motivation mediates the relationship between technology use and performance (Kalsum & Panjaitan, 2025), other findings remain inconsistent. Therefore, further empirical investigation is needed to understand how systems like SIPUS influence employee motivation and performance in the context of Surabaya's public library services.

Based on this conceptual framework, the hypotheses proposed in this study are as follows:

H1: There is an influence between information technology on employee work motivation.

H2: There is an influence between employee work motivation and employee performance.

H3: There is an influence between information technology in employee performance

H4: There is an influence between the use of information technology on employee performance through work motivation at the Surabaya City Library and Archives Service.

2. METHODS

This study employs explanatory research with a problem formulation that combines research to explore or photograph the environmental situation that will be studied comprehensively, broadly and in depth, with the aim of systematically describing the facts or characteristics of a particular population or a particular field factually and carefully. The research uses objectively measurable data from quantitative questions given to respondents. The questions given tend to use a closed format with structured answer choices. The data obtained from the research carried out was then analyzed using the SEM (Structural Equation Model) method in the AMOS 21 application software.

The population used in this research was the staff of the Surabaya City Library and Archives Service, totaling 381 people consisting of the head of the work team, librarians, civil servant staff and non-civil servant staff. Determination of the sample size was calculated using the Slovin formula, resulting in a sample of 195 employees. The number of samples was taken from the Library Development and Management Sector of the Surabaya City Library and Archives Service because this is the sector that uses the SIPUS application with the highest intensity to provide services to the community.

Data collection is carried out through a structured questionnaire developed specifically for this research. The questionnaire comprises items designed to measure the characteristics of answer to variable indicators of information technology use, work motivation, and employee performance. Each item is formulated based on established scales and adapted to the context of the Library Development and Management Sector of the Surabaya City Library and Archives Service. Prior to administration, the instrument undergoes a pilot test to ensure reliability and validity.

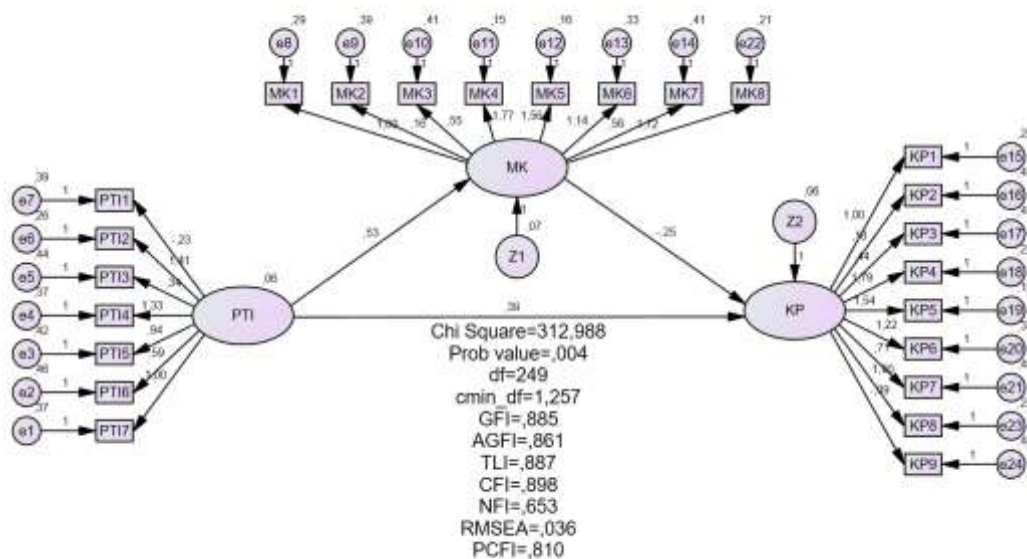


Figure 1. SEM in AMOS21 study case structure model

Source: explained

The data analysis techniques employed in this study include both descriptive and inferential statistics. Descriptive statistics are used to summarize the demographic characteristics of the respondents and the key variables. Inferential statistics, specifically the SEM (Structural Equation Model) method using AMOS 21 software, are applied to test the hypothesized relationships between the use of information technology, work motivation, and employee performance. This technique allows for the simultaneous analysis of multiple dependent and independent variables, providing a comprehensive understanding of the underlying dynamics.

This study utilizes a robust methodological approach to explore the relationships between the use of information technology, work motivation, and employee performance at the Surabaya City Library and Archives Service. By employing SEM in AMOS 21, the research is able to provide detailed insights into the direct and indirect effects of the studied variables, contributing valuable knowledge to the field of public administration and human resource management.

3. RESULTS AND DISCUSSION

The study analyzed data from 195 respondents who are employees at the Surabaya City Library and Archives Service. The demographic data was categorized based on gender and education level. The gender distribution showed that the majority (61.5%) of respondents were female, while 38.5% were male. In terms of education, 83.1% of respondents held a diploma or bachelor's degree, while 16.9% had a high school education.

This study utilizes a quantitative approach, employing Structural Equation Modeling (SEM) using AMOS 21 software to analyze the data and test the hypothesized relationships. The findings of this research are expected to contribute to the existing body of knowledge by providing empirical evidence on the significance of information technology use and work motivation in enhancing employee performance. Moreover, the study aims to offer practical recommendations for policymakers and administrators in the public sector to develop strategies that enhance employee motivation and performance.

The use of information technology was evaluated through a series of items in the questionnaire, resulting in a high average score of 4.22, indicating strong agreement among respondents on the positive impact of information technology on their work. The findings suggest that the SIPUS application is effectively facilitating employees' tasks, contributing to higher work efficiency. Work motivation was measured through various indicators, with an average score of 4.27. Respondents agreed that their motivation levels are high, driven by factors such as job satisfaction and a sense of responsibility. However, scores for certain aspects like recognition and career advancement opportunities were

slightly lower, indicating areas for potential improvement. Employee performance was assessed based on several criteria, resulting in an average score of 4.29. Respondents reported high performance levels, particularly in terms of teamwork and adherence to regulations. However, there were lower scores for independent work and task completion without supervision, suggesting a reliance on team efforts and managerial guidance.

The structural model indicated that the use of information technology and work motivation positively influence employee performance. However, the mediation analysis showed that work motivation does not significantly mediate the relationship between the use of information technology and employee performance, indicating a direct impact of technology use on performance. The study concludes that enhancing information technology systems and addressing motivational factors can further improve employee performance at the Surabaya City Library and Archives Service.

Table 1. Cronbach's Alpha per variable

Variable	Cronbach's Alpha
Information Technology	0,916
Motivation	0,837
Employee Performance	0,906

Source: Data Processed (2025)

The reliability test results for the research variables of information technology use, employee work motivation, and employee performance yielded Cronbach's alpha values of 0.916, 0.837, and 0.906, respectively. The reliability test results for all three variables showed Cronbach's alpha values greater than 0.6. Therefore, the reliability test results for the variables of information technology use, employee work motivation, and employee performance are considered reliable. This means that the items in the questionnaire are deemed reliable, consistent, and capable of providing consistent results.

The reliability test for the variables of information technology use, employee work motivation, and employee performance obtained Cronbach's Alpha values of 0.916, 0.837, and 0.906, respectively. A reliability test is considered reliable if the Cronbach's Alpha value is greater than 0.06. Based on the reliability test results of this study, all variables have values greater than 0.06, thus all variables in this research are deemed reliable. Reliability is a measure that indicates the extent to which the measurement tool used in a study can be trusted. If a measurement has a high reliability value, it can provide accurate, consistent results and precise predictive ability (Ghozali, 2009)..

Table 2. Goodness of Fit test using AMOS21

Calculation Index	Value	Cut of Value	Results
Absolute Fit Indices			
<i>p-value Chisquare</i>	312,988	227,496	Not Fit
CMIN/DF	1.257	≤ 2,00	Fit
GFI	0.885	≥ 0,90	Moderately Fit
AGFI	0.861	≥ 0,90	Moderately Fit
RMSEA	0.036	≤ 0,08	Fit
Model Comparison			
CFI	0.898	≥ 0,90	Moderately Fit
TLI	0.887	≥ 0,90	Moderately Fit
Model Parsimony			
PCFI	0.810	≥ 0,60	Fit

Source: Data Processed (2025)

Goodness of Fit (GoF) is an indication of the comparison between the model and the observed variables. This test aims to show the extent to which the overall model is appropriate and accurate for use as validation. Based on the results of the Goodness of Fit (GoF) test using the AMOS 21 application, it was found that the model used in this research is fit. This is indicated by the values of the measurement tools that have met the criteria, although not all criteria were fulfilled. However, according to Solimun (2022), if at least one criterion meets the requirements of the Overall Model Fit, the model can be considered good.

Table 3. Hypotheses test using SEM in AMOS

Variable	Estimate	S.E.	C.R	P
Information Technology to Motivation	0,534	0.187	2.861	0,004
Motivation to Employee Performance	-0,254	0.118	-2,151	0,032
Information Technology to Employee Performance	0,389	0.177	2,193	0,028

Source: Data Processed (2025)

Based on the results of the SEM analysis using the AMOS 21 application, two equations can be derived as follows:

Equation 1: $PTI = 0.534 MK + 0.389 KP$

Equation 2: $MK = -0.254 KP$

Work motivation has a positive estimation coefficient of 0.534 with respect to the use of information technology. This means that work motivation positively impacts the increase in the use of information technology by 0.534 in carrying out tasks.

Employee performance has a positive coefficient of 0.389 with respect to the use of information technology. This indicates that employee performance positively affects the increase in the use of information technology by 0.389 in performing tasks.

Employee performance has a negative coefficient of -0.254 with respect to work motivation. This means that employee performance does not positively impact the increase in work motivation while carrying out tasks.

Table 4. Significancy test statistics in AMOS

	Estimate	T statistics	P values	Result
Information Technology to Motivation	0.463	-	0.004	Significant
Motivation to Employee Performance	0.285	-	0.032	Significant
Information Technology to Employee Performance	0.377	-	0.028	Significant
Information Technology to Motivation to Employee Performance	-	1,661	-	Non-Significant

Source: Data Processed (2025)

The first hypothesis tested whether there is an effect of information technology usage on employee motivation at the Surabaya City Library and Archives Office. The null hypothesis (H_0) stated that there is no effect, while the alternative hypothesis (H_1) posited that there is an effect. The significance level was set at 0.05. The p-value for the effect of information technology usage on motivation was 0.004, which is less than 0.05, leading to the rejection of H_0 . This result indicates that there is a significant effect of information technology usage on employee motivation in this context.

The second hypothesis investigated the impact of information technology usage on employee performance at the same office. With a significance threshold of 0.05, the p-value for information technology usage on employee performance was 0.028, which is below 0.05. Therefore, H_0 was rejected, concluding that there is a significant effect of information technology usage on employee performance.

The third hypothesis explored the relationship between work motivation and employee performance. The significance level was again set at 0.05. The p-value for the effect of work motivation on employee performance was 0.032, which is less than 0.05, leading to the rejection of H_0 . Thus, it was concluded that there is a significant effect of work motivation on employee performance.

To assess whether work motivation mediates the relationship between information technology usage and employee performance, a Sobel test was performed. The path coefficients and standard errors were used to calculate the Sobel test statistic. The computed value of t was 1.66190. Since this value is less than the critical t-value of 1.972 at a 0.05 significance level, H_0 was not rejected. This indicates that work motivation does not mediate the relationship between information technology usage and employee performance, meaning that it is not an intervening variable in this context.

Table 5. Significancy test results

Hypotheses	from	to	Path	Result
H1	Information Technology	Motivation		Accepted
H2	Motivation	Employee Performance		Accepted
H3	Information Technology	Employee Performance		Accepted
H6	Information Technology	Employee Performance with Motivation as mediator		Rejected

Source: Data Processed (2025)

The study found that both information technology usage and work motivation significantly impact employee performance. However, work motivation does not serve as a mediator between information technology usage and performance. These findings highlight the direct effects of information technology and motivation on performance but suggest that motivation alone does not influence the relationship between technology usage and performance.

The data collected from this study include observations and interviews conducted in the field, as well as responses from questionnaires. Observations at the Community Reading Park (TBM) revealed that respondents, who are staff managing the TBM at the Surabaya City Library and Archives Office and users of the SIPUS application, follow a daily routine. They start by cleaning the TBM space, preparing a manual attendance list, and welcoming visitors. When a visitor arrives, respondents greet them warmly and inquire about their needs. They then use the SIPUS app on their smartphones to record the visit, either entering data for new visitors or checking in registered members.

Interviews with respondents showed that the SIPUS application significantly aids in managing visit records, which previously required manual entry and Excel spreadsheets for weekly and monthly summaries. With SIPUS, data can be entered in real-time and reports generated easily. The app also simplifies book lending, replacing manual processes with digital entries for member numbers and book barcodes. Additionally, SIPUS has streamlined the stock-taking process, allowing for quicker and easier inventory updates through barcode scanning.

The analysis of questionnaire responses, using SPSS 23 and AMOS 21, revealed that the use of information technology, specifically SIPUS, positively impacts employee motivation at the library. Respondents reported increased job efficiency, productivity, and achievement of work goals due to SIPUS. They feel that the app has improved their work experience by making tasks easier and providing useful features that support their daily activities.

Further SEM testing showed that information technology usage significantly affects employee performance at the Surabaya City Library and Archives Office. Respondents demonstrated punctuality, honesty, responsibility, and a willingness to work beyond regular hours, which are key performance indicators. The research supports findings from other studies that technology not only enhances motivation but also directly improves performance.

The mediation analysis using the Sobel test determined that work motivation does not quite mediate the relationship between information technology usage and employee performance well. The Sobel test result indicated that work motivation is not an intervening variable in this context, aligning with other studies that found mixed results regarding motivation as a mediator. Thus, while SIPUS positively influences performance, work motivation does not significantly mediate this effect.

4. CONCLUSION

Based on the conducted research, it can be concluded that the use of the Library Information System (SIPUS) application at the Surabaya City Library and Archives Office has a significant positive effect on both employee motivation and employee performance. The integration of SIPUS into daily operations enhances employees' work efficiency and effectiveness, while also increasing their motivation through improved ease of work, productivity, and goal achievement. In addition, employee motivation itself has a significant positive effect on performance, indicating that factors such as enthusiasm, responsibility, and commitment contribute to better work outcomes. However, the study also finds that work motivation does not act as a mediating variable in the relationship between information technology use and employee performance, meaning that SIPUS directly influences performance without passing through motivation as an intervening factor.

Despite these findings, this study has several limitations, particularly in its focus on a single public institution and a limited set of variables, which may not fully capture other factors influencing employee performance. Therefore, future research is recommended to include additional variables such as organizational culture, leadership style, digital competence, or job satisfaction as potential mediators or moderators. Expanding the research scope to different institutions or sectors is also suggested to improve generalizability. Hopefully, future studies will provide a more comprehensive understanding of the mechanisms through which information technology influences employee outcomes and offer more strategic recommendations for optimizing technology implementation in public organizations.

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