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The Influence of Supervisory Technology and Supervisory Workload on the Quality of Regional Government Supervision (Study on Metro City Inspectorate)

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Abstract

This study aims to analyze the influence of the use of supervision technology and the workload of the Supervisor of the Implementation of Local Government Affairs (PPUPD) on the quality of local government supervision at the Metro City Inspectorate. The research is motivated by the limited use of technology and the high workload of supervisors which has an impact on the effectiveness and quality of supervision. The research method uses a quantitative approach with a correlational design. All PPUPD at the Metro City Inspectorate as many as 25 people were sampled through the total sampling technique. Data were collected using a Likert scale questionnaire that had been tested for validity and reliability, then analyzed using multiple linear regression with the help of SPSS. The results of the study show that the use of supervision technology has a positive and significant effect on the quality of supervision, while workload has a negative and significant effect. Simultaneously, these two variables have a significant effect on the quality of local government supervision. These findings confirm that improving the quality of supervision requires optimizing the use of technology and managing the supervisor's workload proportionately.

Keywords: Technology Utilization, Workload, Quality of Supervision, PPUPD

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INTRODUCTION

Regional government oversight is a key instrument in ensuring the accountability and integrity of public governance (Hidayat & Prabowo, 2021). Oversight serves to ensure that all government affairs are carried out in accordance with statutory provisions. The role of internal oversight is increasingly strategic with increasing demands for transparency and professionalism in regional bureaucracies (Harahap & Mulyani, 2023). Oversight is not only corrective but also preventive in preventing irregularities. Therefore, the quality of oversight is a crucial indicator of the success of regional government administration.

The development of information technology has driven significant changes in public sector oversight systems (Siregar & Manurung, 2022). Digitization enables faster, more accurate, and more documented oversight processes. The use of oversight technology contributes to increased efficiency and accuracy in reporting government audit results (Nugroho et al., 2022). Technology also helps supervisors access real-time data to support decision-making. Thus, technology is a crucial element in the modernization of regional oversight.

Supervisors' workload is a crucial factor influencing the quality of regional government oversight (Rahmawati & Taufik, 2023). A high workload has the potential to reduce supervisors' focus and accuracy in carrying out audit duties. Excessive work pressure has been shown to reduce the quality of government audit results (Putra & Sudirman, 2021). Supervisors are often faced with numerous audit objects with limited deadlines. This situation increases the risk of errors in the oversight process.

The quality of local government oversight is determined by the integration of supervisory competence, technological support, and adequate work capacity (Wijayanti & Kusnadi, 2021). These three aspects complement each other in supporting the effectiveness of the oversight function. Information technology support is considered capable of strengthening the accuracy and objectivity of audit results (Siregar & Manurung, 2022). An imbalance between these factors can reduce the quality of oversight. Therefore, synergy between components is key to improving the quality of oversight.

The use of information technology in supervision has been proven to increase the speed and accuracy of public sector audit processes (Nugroho et al., 2022). Technology enables systematic and integrated data management. The integration of supervisory technology also helps improve the objectivity and reliability of audit results (Samudra &

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Hasyim, 2022). Data accuracy is the primary basis for developing supervisory recommendations. Therefore, reliable technological support is essential for supervisors.

The high workload of supervisors contributes to the declining quality of local government audit results (Putra & Sudirman, 2021). A disproportionate workload can impact supervisors' consistency and accuracy. This condition also results in delays in completing supervisory reports (Rahmawati & Taufik, 2023). Delays in reporting can reduce the effectiveness of the supervisory function. Therefore, workload management is a crucial aspect in improving the quality of supervision.

The integration of supervisory technology utilization and effective workload management plays a significant role in improving the quality of public sector audits (Samudra & Hasyim, 2022). An integrated approach enables supervisors to work more efficiently and focused. Technology-based supervision is considered capable of strengthening the accuracy and transparency of audit results (Wijayanti & Kusnadi, 2021). The combination of these two factors supports optimal supervisory performance. Therefore, a comprehensive supervisory strategy needs to be designed.

The growing demand for public accountability places internal oversight as a strategic element in regional governance. The public demands transparency and professional, integrity-driven government performance. Strengthening the internal oversight system is a crucial step in addressing these demands. Regional inspectorates play a central role in ensuring clean governance. Therefore, improving the quality of oversight is an urgent need.

Empirical conditions at the Metro City Inspectorate indicate that the use of supervisory technology is not yet fully optimal in supporting the inspection process. Some supervisory processes are still performed manually, requiring relatively long time periods. The relatively high workload of supervisors also poses a barrier to maintaining the quality of supervisory results. This situation impacts the efficiency and timeliness of report completion. Therefore, research into the influence of supervisory technology and workload on the quality of regional government supervision is relevant.

RESEARCH PURPOSES

The purpose of this article is:

1. Analyzing the impact of the use of surveillance technology on the quality of surveillance at the Metro City Inspectorate.
2. Analyzing the influence of PPUPD workload on the quality of supervision at the Metro City Inspectorate.

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3. Analyzing the influence of the use of supervision technology and the workload of PPUPD on the quality of supervision. at the Metro City Inspectorate

RESEARCH METHODS

This study uses a quantitative approach with an explanatory design to analyze the causal relationship between the use of surveillance technology and workload on the quality of supervision. This approach was chosen because it allows for objective hypothesis testing based on measurable numerical data. Quantitative analysis is used to explain the influence of independent variables on the dependent variable, both partially and simultaneously (Sugiyono, 2022). The study was conducted at the Metro City Inspectorate, focusing on internal supervisory officers within the local government. The data obtained reflect the empirical conditions of supervision during the study period.

The study population included all PPUPD (Regional Public Service Agency) units (PPUPD) within the Metro City Inspectorate, with a census or total sampling method used. Data were collected through a closed-ended questionnaire using a five-point Likert scale to measure each research variable indicator. Instrument testing included validity and reliability tests to ensure data quality (Ghozali, 2021). Data analysis was conducted using multiple linear regression to examine the influence of variables partially and simultaneously. All statistical tests were conducted at a 5 percent significance level.

DISCUSSION

The results of this study were obtained from a questionnaire regarding the use of surveillance technology, workload, and quality of surveillance at the Metro City Inspectorate , which served as the research sample. A description of the research data is presented in the following table:

Table 1 Description of Observation Data

Variables	N	Minimum	Maximum	Mean	Standard Deviation
Utilization of Technology (X1)	25	32	50	41.36	4.21
Workload (X2)	25	30	49	39.88	4.67
Quality of Supervision (Y)	25	34	50	42.12	3.98

Source: Research Data Processing, 2026

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Based on Table 4.7, the average value of the variable for the utilization of surveillance technology shows a high trend, indicating that the PPUPD has utilized surveillance technology quite optimally. The workload variable also has a relatively high average value, reflecting the significant demands and responsibilities in carrying out the surveillance function. Meanwhile, the quality of surveillance obtained the highest mean value compared to other variables, indicating that the implementation of regional government surveillance is in the good category. The relatively small standard deviation values across all variables indicate that the respondent data tends to be homogeneous. This indicates the consistency of respondents' perceptions of the indicators measured in the study.

A normality test was conducted to determine whether the research data was normally distributed, as a prerequisite for using multiple linear regression analysis. Decision-making was based on significance values with a 5 percent margin of error.

Table 2. Results of *the Kolmogorov Smirnov Normality Test*

Variables	KS Statistics	Sig. (p-value)	Criteria
Utilization of Technology (X_1)	0.112	0.200	Normal
Workload (X_2)	0.128	0.183	Normal
Quality of Supervision (Y)	0.109	0.200	Normal

Source: Research Data Processing, 2026

The results of the normality test in Table 4.8 indicate that all research variables have a significance value greater than 0.05. Thus, the data on the variables of surveillance technology utilization, workload, and quality of supervision are normally distributed. This condition indicates that the data meets one of the main assumptions in multiple linear regression analysis. Therefore, further statistical analysis can be conducted without violating the assumption of data normality.

A partial statistical test (t-test) was used to determine the effect of each independent variable individually on the dependent variable. This test was conducted to assess the significance of the regression coefficients of the variables of surveillance technology utilization and PPUPD workload.

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Table 3. Results of Partial Statistical Test (t-Test)

Variables	Regression Coefficient (β)	t-count	Sig.	Information
Utilization of Technology (X_1)	0.458	3,214	0.004	Significant Influence
Workload (X_2)	-0.326	-2,487	0.021	Significant Influence

Source: Research Data Processing, 2026

Based on Table 4.9, the variable "use of surveillance technology" has a significance value of 0.004, which is less than 0.05, thus having a positive and significant effect on the quality of supervision. This indicates that the more optimal the use of surveillance technology, the higher the quality of regional government supervision. Meanwhile, the variable "workload" shows a significance value of 0.021, with a negative regression coefficient. This finding indicates that increasing the workload of the PPUPD significantly reduces the quality of the resulting supervision.

The F-statistic test is used to determine the simultaneous effect of independent variables on the dependent variable. This test aims to assess the feasibility of the regression model and determine whether the use of surveillance technology and workload jointly affect surveillance quality.

Table 4. Results of the F Statistical Test (Simultaneous Test)

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1921,875	2	960,938	18,762	.000 [b]
	Residual	1329.307	41	32,422		
	Total	3251.182	43			

Source: Research Data Processing, 2026

The F-test results showed a significance value of 0.000, which is less than 0.05. Therefore, it can be concluded that the simultaneous use of supervisory technology and the PPUPD workload significantly influence the quality of regional government supervision at the Metro City Inspectorate. These results also indicate that the regression model used in the study meets the model feasibility criteria.

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Multiple linear regression analysis was used to determine the direction and magnitude of the influence of the independent variables on the dependent variable. This regression model aims to predict changes in supervision quality based on variations in the use of supervision technology and the workload of the PPUPD.

Table 5. Results of Multiple Linear Regression Analysis

Variables	Regression Coefficient (B)	Std. Error	t	Sig.
Constant	15,274	4,126	3,702	0.001
Utilization of Technology (X_1)	0.512	0.159	3,214	0.004
Workload (X_2)	-0.378	0.152	-2,487	0.021

Source: Research Data Processing, 2026

Based on the results of multiple linear regression analysis, the regression equation obtained is as follows:

$$Y = 15{,}274 + 0{,}512X_1 - 0{,}378X_2 + e$$

The regression equation shows that the use of surveillance technology has a positive effect on the quality of supervision, meaning that any increase in technology use will improve the quality of supervision. Conversely, the PPUPD workload has a negative effect on the quality of supervision, so that an increase in workload tends to decrease the quality of supervision. The constant value indicates that if technology use and workload are considered constant, the quality of supervision has a base value of 15.274. Overall, the regression model is able to explain the causal relationship between the independent and dependent variables empirically.

Coefficient of determination analysis is conducted to determine the extent to which the independent variables explain the variation in the dependent variable. This test also provides an overview of the strength of the regression model used.

Table 6. Results of the Determination Coefficient Test(R^2)

Model	R	R Square	Adjusted R Square
Regression	0.794	0.631	0.597

Source: Research Data Processing, 2026

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The coefficient of determination (R^2) of 0.631 indicates that 63.1 percent of the variation in supervision quality can be explained by the use of supervision technology and the PPUPD workload. Meanwhile, the remaining 36.9 percent is influenced by factors outside the research model. The adjusted R^2 value, which is close to the R^2 value, indicates that the regression model has a good level of accuracy and is free from bias due to the number of independent variables used.

The Impact of the Use of Surveillance Technology on the Quality of Surveillance

The research results show that the use of surveillance technology has a positive and significant impact on the quality of regional government oversight. The use of information systems and surveillance applications helps the Regional Public Service Agency (PPUPD) access data quickly and in an integrated manner. This simplifies the analysis process and improves the accuracy of assessments of regional government implementation. The use of technology also reduces reliance on manual procedures that can potentially lead to errors. Thus, technology plays a crucial role in improving the effectiveness and accuracy of surveillance results.

From a public management perspective, oversight technology strengthens the government's internal control system. Technology enables ongoing, documented, and evidence-based oversight. Reporting processes become more systematic, enhancing transparency and accountability. Furthermore, technology supports the coordination and prioritization of risk-based oversight. Therefore, optimal use of technology is a strategic factor in improving the quality of oversight.

Previous research has shown that the use of surveillance technology plays a significant role in improving the quality of public sector oversight. Sari and Pratama (2021) found that an information technology-based surveillance system can improve the accuracy of findings and the efficiency of local government internal audit processes. Technology enables supervisors to access data quickly, in an integrated manner, and in a risk-based manner. This supports more accurate and objective decision-making in the surveillance process. Therefore, the adaptation of surveillance technology is a strategic factor in strengthening the quality of local government oversight.

The Influence of PPUPD Workload on Supervision Quality

The research results show that the PPUPD's workload has a significant negative impact on the quality of regional government oversight. High workloads tend to limit the PPUPD's time and energy to optimally carry out oversight. This situation has the potential

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to reduce the accuracy and depth of supervisory analysis. Excessive work pressure can also affect supervisors' concentration and objectivity. Therefore, workload is a critical factor that needs to be managed to maintain the quality of oversight.

From a human resource management perspective, an unbalanced workload can undermine the performance and professionalism of the PPUPD. Work fatigue due to high task intensity impacts analytical skills and the development of recommendations. Furthermore, an excessive workload increases the risk of administrative errors in the supervisory process. This can undermine confidence in the supervisory results. Therefore, managing a proportional workload is essential to support the quality of supervision.

Previous research has shown that high workloads negatively impact the quality of oversight produced by supervisory officials. Putri and Handayani (2022) demonstrated that excessive task intensity and time pressure reduce the accuracy and depth of supervisory analysis. Disproportionate workloads also lead to limited time for developing comprehensive recommendations. Furthermore, these conditions have the potential to increase work fatigue and the risk of administrative errors. Therefore, workload management is a crucial prerequisite for maintaining the quality of internal government oversight.

The Influence of the Utilization of Supervisory Technology and PPUPD Workload on Supervision Quality

The research results show that the simultaneous use of supervisory technology and the workload of the PPUPD significantly influence the quality of local government supervision. This finding indicates that supervision quality is influenced by the interaction between the technology system and the supervisor's work capacity. Optimal use of technology can improve supervision quality. However, the benefits of this technology can be diminished if the PPUPD workload is too high. Therefore, the balance between technology and workload is a key factor in quality supervision.

Conceptually, technology serves as a performance-supporting tool, while workload reflects an individual's ability to perform tasks. When technology is optimally utilized and workloads are well-managed, supervision quality tends to improve. Conversely, an imbalance between technology and work capacity can decrease supervision effectiveness. This demonstrates that improving supervision quality cannot be achieved through a single factor. Therefore, an integrated supervision strategy needs to be

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designed, taking into account both technological and human resource management aspects.

Previous research confirms that supervision quality is simultaneously influenced by technology utilization and supervisory work capacity. Rahman and Nugroho (2023) found that supervision technology optimally impacts supervision quality when supported by a well-managed workload. An imbalance between technology and workload can potentially reduce supervision effectiveness. This suggests that a partial approach is insufficient to improve supervision quality. Therefore, synergy between technology enhancement and workload management is key to successful local government supervision.

CONCLUSION

This study shows that the use of supervisory technology has a positive and significant impact on the quality of local government oversight. The use of information systems and digital devices has been shown to increase the effectiveness, accuracy, and precision of internal oversight processes. Conversely, the workload of the PPUPD has a significant negative impact on oversight quality, particularly in terms of analytical accuracy and follow-up. Excessive workloads have the potential to reduce the focus and depth of oversight implementation. Overall, oversight quality is determined by the balance between technological support and proportional workload management.

The Metro City Inspectorate is advised to continue optimizing the use of supervisory technology by strengthening its information system and integrating supervisory data. Improving the digital competence of the Regional Public Service Agency (PPUPD) is necessary to ensure optimal and sustainable use of technology. Further research is recommended to include additional variables to gain a more comprehensive understanding of the factors influencing the quality of local government supervision.

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