The Role of Workload and Work Motivation in Shaping Employee Performance in Public Infrastructure Organizations in the Electricity Transmission Sector

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Article Info	Abstract
	Employee performance is a key factor in the success of public infrastructure organizations, particularly in the electricity transmission sector, which operates in a high-risk and highly regulated environment. This study aims to analyze the role of workload and work motivation in shaping employee performance in public infrastructure organizations in the electricity transmission sector. The study uses a quantitative approach with a causality design and was conducted at PT PLN's Makassar Transmission Implementation Unit. Data were collected through questionnaires administered to 60 permanent employees selected using purposive sampling. Data analysis was performed using multiple linear regression preceded by validity, reliability, and classical assumption tests. The results show that workload and work motivation each have a positive and significant effect on employee performance. In addition, these two variables simultaneously have a significant influence, explaining 57.4% of the variation in employee performance. These findings indicate that in the context of an electricity transmission organization as a high-reliability public organization, a proportionally managed workload supported by adequate work motivation can encourage improved employee performance. This study provides empirical contributions in clarifying the mechanism of employee performance formation in the electricity sector and serves as a basis for more effective human resource management in public infrastructure organizations.

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1. INTRODUCTION

Employee performance is understood as a key determinant of organizational success, particularly in public infrastructure organizations that operate in high-risk and highly regulated environments. In the electricity transmission sector, individual performance has direct implications for system reliability, operational safety, and the continuity of public services. Performance failures in this sector not only impact the organization, but can also have broad social and economic consequences. Therefore, electricity transmission organizations are often categorized as high-reliability organizations that are required to maintain consistently high performance under significant operational pressure and risk (Weick & Sutcliffe, 2007).

Conceptually, employee performance is defined as the work results achieved by individuals in terms of both quality and quantity in accordance with the responsibilities assigned to them Mangkunegara, 2015 (Budiasa, (2021). Budiasa, (2021) emphasizes that performance not only represents output but also work behavior that is relevant to the achievement of organizational goals and can be measured systematically. Thus, performance reflects an individual's ability to convert physical, cognitive, and social resources into work results that are valuable to the organization.

In human resource management, workload and work motivation are consistently positioned as the main determinants of employee performance. Workload refers to the accumulation of physical and mental demands that employees must fulfill within a certain period of time, which can potentially affect health, stress levels, and work productivity. Workload arises from the interaction between task demands, work conditions, work standards, and individual competencies and perceptions. An imbalance between work demands and individual capacity can trigger psychological pressure that leads to a decline in performance (Budiasa, 2021).

However, previous research shows that the effect of workload on performance is not singular and linear. A number of studies have found that high workloads tend to reduce performance by increasing fatigue and work stress (Anwar & Afna, 2022; Ihzardian, 2024; Nu'em & Sihotang, 2023; Putri et al., 2024). Conversely, other studies show that under certain conditions, workload can actually function as a work challenge that encourages engagement and improved performance (Budiasa, 2021; Fajri & Terza Rahman, 2021). These differing findings indicate that the impact of workload on performance is highly dependent on the organizational context and the surrounding work system.

In addition to workload, work motivation is a psychological mechanism that determines the intensity, direction, and sustainability of an individual's work behavior. Motivation plays a role in translating organizational demands into productive work efforts. In public organizations, work motivation does not only come from material incentives, but also from professional commitment, work system certainty, and public service orientation (Woruntu et al., 2022; Yuliana et al., 2024). Empirical research generally shows that work motivation has a positive and significant effect on employee performance (Anwar & Afna, 2022; Mustika et al., 2024).

However, empirical evidence regarding the relationship between workload, work motivation, and performance still shows inconsistencies, particularly in the context of public infrastructure organizations. A study by (Wiryang et al., 2019) at PT PLN (Persero) Area Manado shows that workload and work motivation do not always have a significant effect on employee performance. These findings indicate that the mechanism of performance formation in electricity organizations may differ from the patterns commonly found in the private or commercial service sectors.

Furthermore, most previous studies examining workload and work motivation have been conducted in the manufacturing, commercial services, financial institutions, or general administration sectors (Fajri & Terza Rahman, 2021; Mustika et al., 2024; Nu'em & Sihotang, 2023). Research that specifically places electricity transmission units as the empirical context is still very limited, even though this sector has distinctive characteristics in the form of high safety demands, time pressure in maintaining continuity of electricity supply, and a high level of public accountability. These conditions indicate that the research gap does not lie in the variables studied, but rather in the organizational context and the inconsistency of empirical findings in high-reliability sectors.

Based on these gaps, this study explicitly re-examines the relationship between workload and work motivation on employee performance in the context of an electricity transmission organization as a high-reliability public organization. This study does not

merely re-examine the relationship between variables, but offers empirical clarification on the differences in previous research findings by placing PT PLN Makassar Transmission Implementation Unit as the context of the study. Therefore, this study aims to analyze the effect of workload and work motivation on employee performance at PT PLN Transmission Implementation Unit Makassar. The results of this study are expected to provide empirical contributions in clarifying how work demands and psychological drives work simultaneously in shaping employee performance in the electricity sector, as well as providing a basis for more effective human resource management in public infrastructure organizations.

2. METHOD

This study uses a quantitative approach with a causality design to analyze the influence of workload and work motivation on employee performance. The research was conducted at PT PLN Transmission Implementation Unit Makassar. The research population consisted of all permanent employees working at the unit. The sampling technique used purposive sampling, with the criteria being permanent employees who had worked for at least one year and were involved in operational and operational support activities. Based on these criteria, 60 respondents were obtained as the research sample.

The research data was collected through a closed questionnaire with a five-point Likert scale, which was compiled based on the indicators of each research variable. Data analysis was performed using multiple linear regression (Hair et al., 2010). Before testing the hypothesis, the data was first tested for validity and reliability as well as classical assumptions, including normality, multicollinearity, and heteroscedasticity. Hypothesis testing was conducted through partial tests (t-tests), simultaneous tests (F-tests), and coefficient of determination tests (R^2). The entire data processing process used SPSS software version 22.

3. RESULTS AND DISCUSSION

3.1. Results

Validity and Reliability Tests

Validity tests are used to measure the extent to which the items in the questionnaire are able to measure the construct being studied. Statements are considered valid if the corrected item-total correlation value is greater than 0.50. The validity test results in Table 1 show that all statements in the variables of workload, work motivation, and employee performance have correlation values above the minimum required limit, so all items are considered valid and suitable for use in this study.

Reliability testing was conducted to assess the internal consistency of the research instrument using Cronbach's Alpha coefficient, with a minimum threshold of 0.60. The test results in Table 2 show that the Cronbach's Alpha value for all variables is above 0.60, so the research instrument is declared reliable and consistent in measuring the variables under study.

Tabel 1. Validity Test

Variabel	Item	Corrected Item	Significance	Desc.
Workload	X1.1	0,775	0,50	Valid
	X1.2	0,748	0,50	Valid
	X1.3	0,651	0,50	Valid
Work Motivation	X2.1	0,671	0,50	Valid
	X2.2	0,775	0,50	Valid
	X2.3	0,599	0,50	Valid

	X2.4	0,825	0,50	Valid
	X2.5	0,693	0,50	Valid
Employee Performance	Y.1	0,714	0,50	Valid
	Y.2	0,768	0,50	Valid
	Y.3	0,747	0,50	Valid
	Y.4	0,595	0,50	Valid

Tabel 2. Reability Test

Variabel	Item	Cronbach Alpha	Reliability Standard	Desc.
Beban kerja	X1	0,641	0,60	Reliabel
Motivasi kerja	X2	0,760	0,60	Reliabel
Kinerja Karyawan	Y	0,660	0,60	Reliabel

Classical Assumption Test

The normality test was performed using the One-Sample Kolmogorov–Smirnov Test. The test results in Table 3 show a significance value of 0.200, which is greater than 0.05, so it can be concluded that the residual data is normally distributed.

Tabel 3. Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		60
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,36234936
Most Extreme Differences	Absolute	,080
	Positive	,041
	Negative	,080
Test Statistic		,080
Asymp. Sig. (2-tailed)		,200[c,d]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Multicollinearity testing was performed by looking at the Tolerance and Variance Inflation Factor (VIF) values. The test results in Table 4 show that all independent variables have tolerance values above 0.10 and VIF values below 10, so it can be concluded that there is no multicollinearity in the regression model. The heteroscedasticity test was performed by observing the distribution pattern on the Scatterplot graph. Based on Figure 1, the data points are scattered randomly above and below the zero axis and do not form a specific pattern, indicating that the regression model is free from heteroscedasticity.

Tabel 4. Multicongruity

Collinearity Statistics		
Variabel	Tolerance	VIF
Beban_Kerja	.796	1.256
Motivasi_kerja	.796	1.256
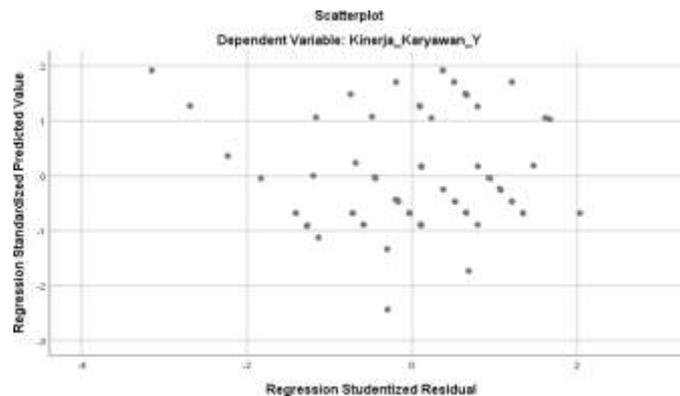
Gambar 1. Heteroscedasticity test

Based on the results of data quality testing and classical assumptions, all research instruments were declared valid and reliable, and the data met the requirements for linear regression statistics. Thus, the regression model used is statistically valid and the results of hypothesis testing can be interpreted correctly.

Multiple Linear Regression Test

The results of the multiple linear regression test in Table 5 show that the workload variable has a regression coefficient of 0.329 with a significance value of 0.010, which is less than 0.05. This indicates that workload has a positive and significant effect on employee performance. The work motivation variable has a regression coefficient of 0.293 with a significance value of 0.032, which is also less than 0.05. These results indicate that work motivation has a positive and significant effect on employee performance. Thus, the first hypothesis is accepted and the second is accepted.

Tabel 5. Multiple Regression Test

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.565	.569		2.752	.008
Workload	.329	.124	.335	2.651	.010
Work Motivation	.293	.133	.278	2.201	.032
a. Dependent Variable: Kinerja_Karyawan					

Tabel 7. Determination Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.624[a]	.574	.449	.456
a. Predictors: (Constant), Motivasi_kerja, Beban_Kerja				

The simultaneous test (F test) results in Table 6 show a significance value of 0.000, which is less than 0.05. This indicates that workload and work motivation simultaneously have a significant effect on employee performance. Furthermore, the results of the coefficient of determination test in Table 7 show an R^2 value of 0.574, which means that 57.4% of the variation in employee performance can be explained by workload and work motivation, while the remaining 42.6% is influenced by other variables outside the research model.

3.2. Discussion

The Effect of Workload on Employee Performance

The results of the study indicate that workload has a positive and significant effect on the performance of employees at PT PLN's Makassar Transmission Implementation Unit. These findings indicate that an increase in workload is followed by an increase in employee performance, as long as the workload is within manageable limits and in line with individual capacity. This enriches the discourse on workload, which has often been perceived as a factor that reduces performance. Budiasa, (2021) emphasizes that workload does not always have a negative impact, because under certain conditions it can function as a challenge stressor that encourages engagement and performance achievement. These research findings are in line with (Fajri & Terza Rahman, 2021), which shows that changes in workload

In the context of PT PLN Makassar Transmission Implementation Unit as a high-reliability electricity transmission organization, workload is closely related to operational targets, safety standards, and the demand for continuity of electricity supply. These results differ from the findings of (Anwar & Afna, 2022) and (Nu'em & Sihotang, 2023), who found that workload has a negative effect on performance. This difference can be explained by the organizational context, where in electricity transmission units, workload tends to be structured, standardized, and supported by strict operational procedures, so that it is not perceived as pressure that weakens performance, but rather as part of professional responsibility. These findings confirm that the effect of workload on performance is contextual, and in public infrastructure organizations such as PLN, properly managed workloads can actually drive performance.

The Effect of Work Motivation on Employee Performance

The results of the study show that work motivation has a positive and significant effect on the performance of employees at PT PLN's Makassar Transmission Implementation Unit. This finding confirms the role of motivation as a key psychological factor that drives employees to exert optimal work effort. These results are consistent with the findings of (Mustika et al., 2024; Woruntu et al., 2022), and (Yuliana et al., 2024), who state that work motivation is an important determinant of employee performance in various organizational sectors, including public organizations.

In this context, work motivation does not solely stem from material aspects such as salary, but also from policy clarity, administrative systems, and a sense of responsibility towards public service. This is in line with the research introduction, which positions PLN as a high-reliability public organization, where employee performance is strongly supported by professional commitment and service orientation. These findings also clarify the results of research by (Wiryang et al., 2019), which found that work motivation does not always have a significant effect on performance in certain PLN units. This difference in results shows that the effect of motivation on

performance is greatly influenced by internal organizational conditions, particularly perceptions of fairness, system certainty, and organizational support for employees.

Simultaneous Influence of Workload and Work Motivation on Employee Performance

The simultaneous test results show that workload and work motivation together have a significant effect on the performance of PT PLN Makassar Transmission Implementation Unit employees. These findings confirm that employee performance cannot be explained by just one factor, but is the result of an interaction between work demands and psychological drives.

Conceptually, workload represents the external pressures that employees must face, while work motivation serves as an internal resource to respond to these pressures productively. (Syabani & Huda, 2019) explain that high workload has the potential to reduce performance if it is not balanced by adequate motivation, but strong motivation can mitigate the negative impact of workload and maintain optimal performance.

In the context of PT PLN Makassar Transmission Implementation Unit, these findings indicate that high workloads can improve performance when supported by strong work motivation. This confirms that performance in an electricity transmission organization as a high-reliability public organization is shaped by the balance between work pressure and the psychological capacity of employees. Therefore, simultaneous management of workload and strengthening of work motivation are key to improving employee performance in the electricity sector.

4. CONCLUSION

The results of the study indicate that workload and work motivation have a positive and significant effect, both partially and simultaneously, on the performance of employees at PT PLN's Makassar Transmission Implementation Unit. These findings confirm that employee performance is shaped by the interaction between work demands and psychological drives, whereby a proportionately managed workload and strong work motivation can drive improved performance in a high-risk and regulated work environment. These results clarify the inconsistencies found in previous studies by showing that the influence of workload and work motivation on performance is contextual, particularly in public infrastructure organizations. The implications of this study emphasize the importance of balanced workload management and strengthening work motivation as key strategies for improving employee performance in the electricity sector.

5. ACKNOWLEDGMENTS

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