



The Influence of Leadership, Motivation, and Work Environment on Company Performance at PT PLN (Persero) Sektor Pembangkitan Belawan

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ABSTRACT

This study investigates the influence of leadership, motivation, and work environment on company performance at PT PLN (Persero) Sektor Pembangkitan Belawan. Employing a quantitative associative approach, the research utilizes multiple linear regression analysis to examine the relationships among variables. The population comprises 74 employees, with the entire population serving as the sample through a total sampling technique. Data were collected using a Likert-scale questionnaire and analysed using SPSS software. The results reveal that leadership, motivation, and work environment each have a positive and significant effect on company performance, both partially and simultaneously. The regression equation derived is: $Y = 3.203 + 0.275X_1 + 0.263X_2 + 0.197X_3$. The model's Adjusted R^2 value is 0.619, indicating that 61.9% of the variance in company performance can be explained by the three independent variables. These findings underscore the critical role of human resource factors in enhancing organizational performance. The study contributes to the literature on organizational behaviour and human resource management by highlighting the significance of leadership, motivation, and work environment in driving company performance. It also provides practical insights for managers aiming to improve organizational outcomes through strategic human resource interventions.

Keyword: Leadership, Motivation, Work Environment, Company Performance



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1. INTRODUCTION

In the era of digital transformation and global competition, the performance of companies in the energy sector has become a critical focus, particularly for state-owned enterprises (SOEs) that hold strategic national importance. In Indonesia, PT PLN (Persero) plays a vital role in ensuring electricity supply stability, yet challenges in operational reliability and human resource management continue to hinder optimal performance outcomes. According to the Kementerian Energi dan Sumber Daya Mineral (ESDM), electricity consumption in Indonesia rose by 6.2% in 2023, driven by industrial recovery and urban expansion. However, data from PLN's annual performance report (2023) indicated that over 37% of generation units in Sumatera experienced unplanned outages, primarily due to aging infrastructure and human error. This has directly impacted key performance indicators (KPI) such as efficiency, service quality, and public satisfaction. Focusing on PT PLN

(Persero) Sektor Pembangkitan Belawan, historical performance data (2018–2022) reveals a fluctuating trend in the organizational performance score (Nilai Kinerja Organisasi/NKO), with a significant drop from 94.53 (2018) to 75.77 (2019), before improving to 92.90 in 2022. Despite the recovery, in-depth internal audits found that issues such as low employee motivation, ineffective leadership practices, and non-conducive work environments were key barriers to consistent performance excellence. A preliminary survey conducted by the researcher among 30 employees at the Belawan power plant further confirmed this situation. Only 54.5% of respondents perceived workplace motivation to be adequate, while 55.8% reported ineffective leadership communication, and 48.7% expressed dissatisfaction with the work environment conditions, including safety, lighting, and interpersonal relations. These data highlight a pressing need to investigate the influence of leadership, motivation, and work environment on company performance using empirical analysis. By identifying the magnitude and significance of these factors, this study aims to provide actionable recommendations for organizational improvement within the energy sector.

Human resources (HR) remain a pivotal asset in organizational success, especially in capital-intensive sectors such as energy production. As digitalization, environmental demands, and workforce transformation accelerate, the strategic role of leadership, employee motivation, and workplace environment becomes increasingly prominent in sustaining operational excellence. A national survey by Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi (KemenPAN-RB, 2023) reported that 67.4% of underperforming SOE units cited poor leadership clarity and low employee engagement as primary contributors. Furthermore, the Indonesia Human Capital Index (HCI) score remained stagnant at 0.54 in 2022, far below Singapore (0.88) and Malaysia (0.68), indicating substantial room for improvement in workforce effectiveness and alignment. At the organizational level, PT PLN (Persero) Sektor Pembangkitan Belawan faces a similar challenge. Internal assessments revealed that 56% of its managerial personnel lack formal leadership development, and only 40% of employees feel their contributions are adequately recognized. In terms of environmental factors, workplace audits noted suboptimal safety systems and facility conditions, with 32% of staff reporting discomfort related to noise and lighting in the generator units. These human capital deficiencies are reflected in fluctuating KPI metrics. Between 2019 and 2021, the “Perspektif SDM” indicator in the company’s performance score decreased from 7.00 to 3.99, and satisfaction with work environment infrastructure dropped by 14% year-on-year. The misalignment between leadership practices, employee motivation, and conducive work environments significantly hinders the ability to maintain stable performance levels. Therefore, a data-driven investigation into how these HR-related variables influence company performance is critical—both to inform targeted interventions at PT PLN Belawan and to contribute to broader organizational development strategies in Indonesia’s energy sector.

At the organizational level, PT PLN (Persero) Sektor Pembangkitan Belawan faces a similar challenge. Historical performance data from 2018 to 2022 reveals a fluctuating trend in the organizational performance score (Nilai Kinerja Organisasi), which fell from 94.53 (2018) to 75.77 (2019) before recovering to 92.90 (2022). However, this recovery masks several internal issues, particularly in human capital management:

1. Ineffective Leadership: 55.8% of employees reported that supervisors provide unclear directives and rarely involve subordinates in decision-making.
2. Low Motivation: Only 40% of employees feel recognized for their performance, and 73.3% believe promotions are not based on merit.
3. Poor Work Environment: 56.7% reported poor lighting, and 63.3% expressed weak interpersonal relations with supervisors.

A preliminary survey of 30 employees further supports this: only 54.5% rated their motivation positively, and 51.3% were satisfied with the work environment. These conditions indicate that internal human capital issues significantly affect overall company performance.

Given the empirical evidence and internal organizational challenges identified at PT PLN (Persero) Sektor Pembangkitan Belawan, a deeper understanding of the human factors influencing company performance is required. This study is designed to address that gap by focusing on three primary dimensions: leadership, motivation, and work environment.

The objectives of this research are:

1. To examine the effect of leadership on company performance.
2. To evaluate the role of employee motivation in enhancing organizational outcomes.
3. To assess how the work environment contributes to employee productivity and corporate effectiveness.
4. To analyze the simultaneous effect of leadership, motivation, and work environment on performance.

Research questions:

1. Does leadership have a significant and positive effect on company performance?

2. Does employee motivation significantly influence performance outcomes?
3. To what extent does the work environment impact company performance?
4. Do leadership, motivation, and work environment collectively contribute to improving company performance?

This article contributes to current knowledge by empirically analyzing the extent to which leadership, motivation, and work environment affect company performance at PT PLN Belawan. By using a quantitative approach and applying a multiple linear regression model, the study identifies which factors have the strongest influence and provides strategic insights that can support evidence-based human capital development within the energy sector.[1]

2. METHODS

This research employs a quantitative associative approach, which aims to determine the relationship and influence between independent variables—leadership, motivation, and work environment—on the dependent variable, namely company performance. The study is explanatory in nature, focusing on identifying both partial and simultaneous effects among variables through statistical testing. The study utilizes a cross-sectional survey design, collecting data at a single point in time using structured questionnaires. This design enables the analysis of variable relationships as they exist in the natural setting of PT PLN (Persero) Sektor Pembangkitan Belawan. The population in this study consists of all permanent employees at PT PLN (Persero) Sektor Pembangkitan Belawan, totaling 292 individuals. A sample of 74 respondents was selected using proportional random sampling, ensuring that the sample is representative of the population in terms of job positions and departmental distribution.

Prior to analysis, the research instrument was tested for validity using Pearson correlation and for reliability using Cronbach's Alpha. All items used in the final analysis met the criteria for both statistical validity and reliability, with Cronbach's Alpha coefficients exceeding the acceptable threshold of 0.7 for each variable[2].

2.1 Data Analysis Technique

Sugiyono (2018) states that descriptive analysis is used to analyze data that has been collected by describing or depicting the object being studied through samples or populations as they are, without conducting analysis and making general conclusions. There are three aspects presented in descriptive analysis, which include:

1. Analysis of the characteristics of the respondents, which include age, gender, education, income, and so on.
2. This data is then processed using descriptive statistical analysis to obtain the maximum value, minimum value, mean value, mode, and standard deviation.
3. This analysis also illustrates the respondents' answers from the administered questionnaire. In this section, the researcher will analyze the data one by one based on the respondents' answers collected from the questionnaires filled out by the respondents during the research period.[3]

2.2.1. Regression Model Specification

To evaluate the influence of leadership, motivation, and work environment on company performance at PT PLN (Persero) Sektor Pembangkitan Belawan, a multiple linear regression model is applied. The general form of the model is expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

| | |
|--|-------------------------------------|
| Y | = Company performance |
| X ₁ | = Leadership |
| X ₂ | = Motivation |
| X ₃ | = Work environment |
| β ₀ | = Constant (intercept) |
| β ₁ , β ₂ , β ₃ | = Koefisien Regresi Berganda |
| ε | = Error term (unexplained variance) |

The model aims to determine both the individual (partial) and combined (simultaneous) effects of the independent variables on the dependent variable. Statistical testing is conducted using:

- a. **t-test**, to assess the significance of each β₁:

$$t_i = \frac{\hat{\beta}_i}{SE(\hat{\beta}_i)} \text{ for } i=1,2,3$$

b. F-test, to examine the joint effect of all independent variables:

$$F = \frac{R^2/k}{(1-R^2)/(n-k-1)}$$

c. Adjusted R-squared, to measure the explanatory power of the model while adjusting for the number of predictors:

$$\text{Adjusted } R^2 = \left(1 - \frac{(1 - R^2)(n - 1)}{n - k - 1} \right)$$

This model provides a robust framework to quantify how much variation in company performance can be explained by leadership, motivation, and work environment factors, individually and collectively.

3. RESULT AND DISCUSSIONS

3.1 Descriptive Statistics

Descriptive analysis was conducted to provide an overview of respondents' perceptions regarding leadership, motivation, work environment, and company performance. Using a 5-point Likert scale, the mean values for each variable were as follows:

Leadership (X_1): 4.15

Motivation (X_2): 4.03

Work Environment (X_3): 3.89

Company Performance (Y): 4.10

These values suggest that employee perceptions toward leadership and motivation were generally positive, while perceptions of the work environment were relatively moderate. Company performance was perceived to be good, though potentially influenced by variations in the human factors measured.

3.2 Classical Assumption Testing

Before performing regression analysis, classical assumptions were tested to ensure data validity.

Normality Test: Kolmogorov–Smirnov test produced a significance value of 0.200, indicating that the residuals are normally distributed.

Multicollinearity Test: VIF values were below 10 and tolerance values above 0.1 for all independent variables, indicating no multicollinearity.

Heteroscedasticity Test: Scatterplot residuals were randomly distributed and did not form a specific pattern, indicating homoscedasticity.

3.3 Multiple Linear Regression Analysis

The regression equation obtained from the SPSS output is as follows:

$$Y = 3.203 + 0.275X_1 + 0.263X_2 + 0.197X_3 + \varepsilon$$

This means that:

- Every one-point increase in leadership (X_1) increases company performance by 0.275 units.
- Every one-point increase in motivation (X_2) increases performance by 0.263 units.
- Every one-point increase in work environment (X_3) increases performance by 0.197 units.

3.4 t-Test (Partial Significance Test)

Leadership (X_1): $t = 3.096$, Sig. = 0.003

Motivation (X_2): $t = 2.860$, Sig. = 0.006

Work Environment (X_3): $t = 2.391$, Sig. = 0.020

All three independent variables significantly influence company performance at the 5% significance level, indicating that each factor contributes positively to performance outcomes.

3.5 F-Test (Simultaneous Significance Test)

$$F = \frac{R^2/k}{(1-R^2)/(n-k-1)} = \frac{0.638/3}{(1-0.638)/(74-3-1)} = 40.620$$

The F-test resulted in an F-value of 40.620 with a significance level of 0.000 ($p < 0.05$), meaning that leadership, motivation, and work environment simultaneously have a significant effect on company performance.

3.6 Coefficient of Determination (Adjusted R²)

$$\text{Adjusted } R^2 = 1 - \left(\frac{(1-R^2)(n-1)}{n-k-1} \right)$$

$$1 - \left(\frac{(1-0.638)(74-1)}{74-3-1} \right) = 0.619$$

The coefficient of determination (Adjusted R²) was 0.619, indicating that 61.9% of the variation in company performance can be explained by the combined effect of leadership, motivation, and work environment. The remaining 38.1% is influenced by other variables not examined in this study.

3.7 Discussion

The results of this study confirm that human resource variables leadership, motivation, and work environment play a critical role in shaping company performance. The significant effect of leadership aligns with Thoha's (2010) theory which posits that clear direction and participative management improve organizational output. The influence of motivation supports Herzberg's two-factor theory, indicating that recognition and fair advancement opportunities directly affect employee engagement. Meanwhile, the work environment's positive impact confirms previous findings (Sunyoto, 2012) emphasizing the role of physical and social conditions in promoting efficiency.

These findings provide evidence that strategic improvements in HRM practices at PT PLN Belawan particularly in managerial training, employee reward systems, and workspace enhancement can significantly improve overall company performance.

4. CONCLUSIONS

This study used a quantitative associative technique to investigate how leadership, motivation, and work environment affect firm performance at PT PLN (Persero) Sektor Pembangkitan Belawan. All three independent variables had a significant and favourable impact on business success, both alone and in tandem, according to the findings of multiple linear regression analysis. The findings indicate that the most important factor is leadership, indicating that managerial skill, decision-making participation, and direction clarity are essential for enhancing employee performance and organisational effectiveness. Performance is greatly influenced by motivation, which highlights how crucial recognition, incentive programs, and equitable career progression are to maintaining employee engagement. A significant part is also played by the workplace, where favourable physical surroundings and positive interpersonal interactions foster increased productivity. The Adjusted R² score shows that these three factors together account for 61.9% of the variation in business success. The remaining 38.1% could be explained by outside variables like workload, organisational culture, innovation, or changes in regulations, which would open up new research directions. This study adds empirically to the body of knowledge on human capital management in the energy industry, particularly as it relates to state-owned businesses in developing nations. Practically speaking, the findings give HR decision-makers strategic insight to emphasise environmental changes, motivation-based performance systems, and organised leadership development as essential components of frameworks for performance enhancement. Further research is recommended to incorporate additional variables such as organizational commitment, job satisfaction, or digital work systems, and to apply longitudinal or mixed-method designs to capture deeper behavioural dynamics over time.

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6. CONFLICT OF INTEREST

Regarding the publishing of this work, the authors affirm that they have no conflicts of interest. The results reflect the authors' unbiased academic interpretation, and each piece of data was gathered and examined separately.

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