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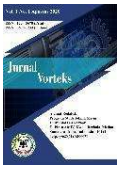

ANALYSIS OF EMPLOYEE PERFORMANCE AND WORK PRODUCTIVITY USING THE WORK SAMPLING METHOD IN THE SHARED SERVICES & SUPPORT DIVISION OF PT. XYZ

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Abstract

This research aims to analyze the impact of leadership, work motivation, and compensation on employee performance and work productivity within the Shared Services & Support Division of PT. XYZ. In the context of increasingly competitive global competition, employee performance plays a crucial role in organizational efficiency. This study uses a quantitative approach with multiple linear regression analysis and the Work Sampling method to measure productivity. The main objective of this research is to evaluate the impact of these factors on employee performance and to measure productivity through Work Sampling analysis. The novelty of this research lies in integrating the Work Sampling method and multiple linear regression to comprehensively analyze performance and productivity. The results indicate that leadership, work motivation, and compensation significantly influence employee performance, with compensation being the most dominant factor. Work Sampling analysis shows that employees spend 77.38% of their time on productive activities, slightly exceeding the industry standard. Therefore, it is recommended that PT. XYZ improve compensation policies, enhance employee motivation, and streamline work processes to reduce non-productive time.

Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh kepemimpinan, motivasi kerja, dan kompensasi terhadap kinerja karyawan serta produktivitas kerja di Divisi Shared Services & Support PT. XYZ. Dalam konteks persaingan global yang semakin ketat, kinerja karyawan memainkan peran krusial dalam efisiensi organisasi. Penelitian ini menggunakan pendekatan kuantitatif dengan analisis regresi linier berganda dan metode Work Sampling untuk mengukur produktivitas. Tujuan utama penelitian adalah untuk mengevaluasi pengaruh faktor-faktor tersebut terhadap kinerja karyawan dan mengukur produktivitas melalui analisis Work Sampling. Penelitian ini memberikan keterbaruan dengan mengintegrasikan metode Work Sampling dan regresi linier berganda untuk menganalisis kinerja dan produktivitas secara menyeluruh. Hasil penelitian menunjukkan bahwa kepemimpinan, motivasi kerja, dan kompensasi memiliki

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Kata Kunci: *Kinerja Karyawan, Produktivitas, Work Sampling, Kepemimpinan.*

pengaruh signifikan terhadap kinerja karyawan, dengan kompensasi sebagai faktor dominan. Analisis Work Sampling menunjukkan bahwa karyawan menghabiskan 77,38% dari waktu mereka untuk aktivitas produktif, sedikit lebih tinggi dari standar industri. Oleh karena itu, disarankan agar PT. XYZ memperbaiki kebijakan kompensasi, meningkatkan motivasi karyawan, dan merampingkan proses kerja untuk mengurangi waktu yang tidak produktif.

INTRODUCTION

In the era of increasingly competitive global competition, organizations and companies are required to maintain their existence through continuous improvement in performance and productivity [1][2]. Human Resources (HR) have become strategic assets that play a crucial role in determining the success of an organization [3]. Employee performance, defined as the quality and quantity of work achieved in carrying out tasks in accordance with given responsibilities, is a primary indicator in measuring organizational effectiveness [4].

PT. XYZ, as a State-Owned Enterprise (SOE) engaged in the telecommunications and digital infrastructure sector, is committed to providing excellent service to communities throughout Indonesia. In its operational structure, the Shared Services & Support Division plays a vital role in supporting the company's operational continuity through administrative functions, human resources, finance, and general support [5][6]. However, based on preliminary observation data, there are indications that uneven workload distribution and less productive use of work time have led to a decrease in the overall effectiveness of the division [7].

Employee performance, reflected in the quality and quantity of work accomplished within a given timeframe, plays a crucial role in maintaining the operational efficiency of a company [8].

Table 1. Hypothetical Data

Challenge Level (1-5)	Internal Challenges Impact (%)	External Challenges Impact (%)	Total Impact on Employee Performance (%)
1	10	5	15
2	15	10	25
3	20	15	35
4	25	20	45
5	30	25	55

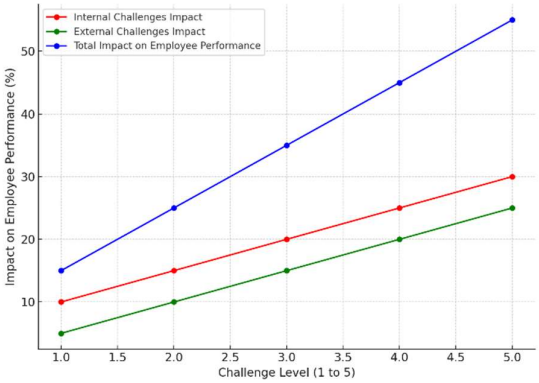

Figure 1. Impact Of Internal And External Challenges On Employee Performance

Various factors influence employee performance, including leadership, work motivation, and compensation. This study focuses on the impact of these three factors on employee performance, particularly within the Shared Services & Support Division of PT. XYZ, a state-owned enterprise in the telecommunications sector. The Work Sampling method is employed to measure productivity by randomly observing employee activities at specific time intervals [9]. This approach allows for the identification of the proportion of productive versus non-productive work time, providing valuable insights into time wastage and the overall operational efficiency of the organization [10].

State of the Art

Several previous studies have shown that factors such as leadership, work motivation, and compensation have a significant influence on employee performance. For example [11],

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stated that effective leadership can impact employee performance through its direct effect on motivation and job satisfaction. Meanwhile, [12] revealed in his research that fair compensation plays an important role in increasing motivation and work productivity. However, although numerous studies have been conducted on the factors influencing employee performance, research examining the relationship between leadership, motivation, compensation, and productivity using the Work Sampling method remains limited [13]. This study addresses that gap by incorporating an observational approach that provides a concrete overview of how these factors contribute to workplace productivity[14].

Research Novelty

This study offers novelty in several aspects. First, it integrates the Work Sampling method with multiple linear regression analysis to evaluate the influence of leadership, motivation, and compensation on employee performance. Second, the research is conducted at PT. XYZ, a state-owned telecommunications company with unique characteristics in human resource management and work productivity. Third, the findings are expected to provide practical recommendations for the company in optimizing HR management and improving productivity through enhanced leadership quality, motivation, and compensation [15].

RESEARCH METHODS

This study employs both quantitative and qualitative approaches. The quantitative approach is used to analyze the relationships between variables that influence employee performance, while the qualitative approach provides a concrete description of how these factors affect work productivity through direct observation [16].

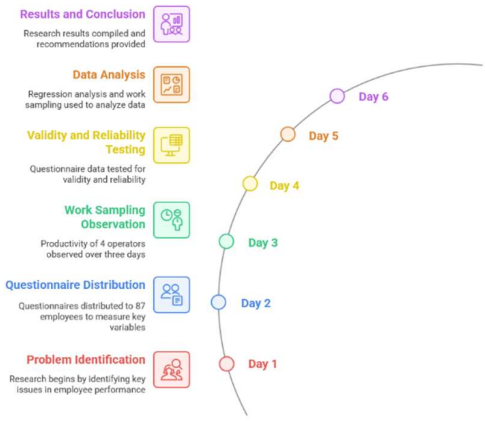

Figure 2. Research Process Flowchart

This study employs a causal-comparative research design, aiming to identify the influence of factors such as leadership, work motivation, and compensation on employee performance and work productivity. The design incorporates two main methods:

- A structured questionnaire survey to measure the influence of leadership, motivation, and compensation on employee performance.
- The work sampling method to assess the proportion of productive and non-productive time utilized by employees in their daily work activities.

Research Instruments

Questionnaire: The questionnaire consists of items designed to measure three independent variables (leadership, work motivation, and compensation) and one dependent variable (employee performance). Each item uses a 5-point Likert scale. Work Sampling Observation: Observation was conducted on 4 operators, with data collected every 10 minutes during a 7-hour workday, over a period of 3 consecutive days.

Data Collection Techniques

Questionnaire: Distributed to 87 employees to gather data related to the factors influencing their performance.

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Observation: Observation data were collected over 3 days by monitoring employee activities using the work sampling method.

Research Procedure

Data Collection: Data were gathered through employee-completed questionnaires and work sampling observations conducted by the researcher on 4 operators.

Validity and Reliability Testing:

- Validity was tested using Pearson correlation.
- Reliability was tested using Cronbach's Alpha.

Data Analysis:

Multiple Linear Regression Analysis: To examine the influence of leadership, work motivation, and compensation on employee performance. Work Sampling Analysis: To calculate the ratio of productive and non-productive time during the observation period [17].

Work Sampling Computation

- Daily work hours: 7 hours (560 minutes)
- Observation interval: every 10 minutes
- Observations/day/person: 42
- Total observations (4 employees, 3 days): 87

Productivity Rate:

$$\text{Productivity} = \frac{\text{Productive}}{\text{Total}} \text{ x } 100\,\% = \frac{65}{84} \text{ x } 100\,\% = 77{,}38\,\%$$

Work Sampling Method Procedure

1. Observation Planning:
   - Estabilishing 560 minutes as the daily working period for observation
2. Observation Execution:
   - Random observation of 4 employees during normal working hours

RESULTS AND DISCUSSION

Following a comprehensive application of both questionnaire and Work Sampling methods, this study provides an integrated analysis of the factors influencing employee performance and its impact on work productivity [18].

Regression Analysis Results:

The multiple linear regression model indicates that leadership (X_1), motivation (X_2), and compensation (X_3) significantly affect employee performance. The Statical findings show:

- Regreession Equation:

$$\boldsymbol{Y} = 3.010 + 0.257X_1 + 0.234X_2 + 0.185X_3$$

- F-test:

F-value = 66.914 > F-table = 2.74 → the model is statistically significant.

- t-test:

All independent variables are significant at $p <$ 0.05

- R^2 Value:

0.772 → indicating that 77.2% of the variance in performance is explained by the model.

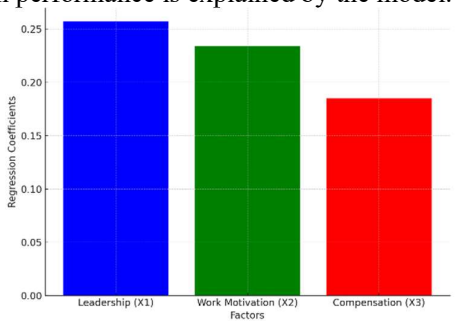

Figure 3 Impact of leadership, motivation and compensation

No	Variabel	Cronbach's Alpha	Minimal Cronbach's Alpha yang diisyaratkan	Keterangan
1	Leadership	0,842	0,600	Reliabel
2	Work Motivation	0,992	0,600	Reliabel
3	Compensation	0,852	0,600	Reliabel
4	Performance	0,880	0,600	Reliabel

Sumber : Pengolahan Data SPSS 25

Figure 4 Reliability Analysis

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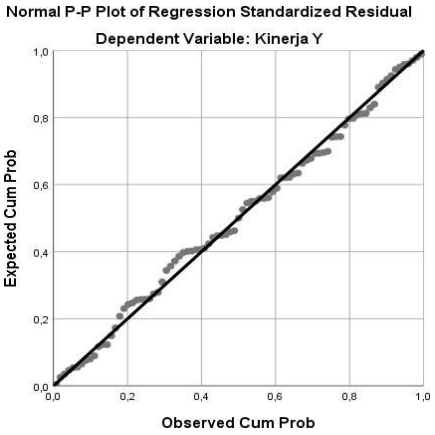


Figure 5 Graphic of Normal P-P Plot

		Unstandardized Residual
N		87
Normal Parameters[a,b]	Mean	,0000000
	Std.Deviation	,98240332
Most ExtremeDifferences	Absolute	,051
	Positive	,045
	Negative	-,051
Test Statistic		,051
Asymp. Sig. (2-tailed)		,200

a. Test distribution is Normal.

b. Calculated from data.

Sumber : Pengolahan Data SPSS 25

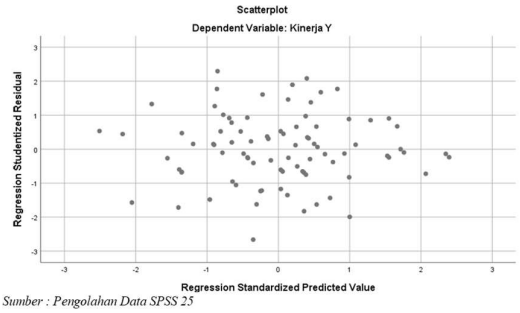
Figure 6 One-Sample Kolmogorov-Smirnov Test

Coefficients[a]

Model	*Unstandardized Coefficients*		*Standardized Coefficients*	t	Sig.	*Collinea Statistics*
	B	Std. Error	Beta			Tolerance
(Constant)	,875	,224		3.912	,000	
Leadership X_1	,167	,071	,165	2,361	,021	,488
Work Motivation X_2	,204	,062	,281	3,283	,002	,325
Compensation X_3	,463	,057	,560	8,099	,000	,500

Sumber : Pengolahan Data SPSS 25

Figure 7 Multicollinearity Test



Sumber : Pengolahan Data SPSS 25

Figure 8 Heteroscedasticity Test

Coefficients[a]

Model	*Unstandardized Coefficients*		*Standardized Coefficients*	t	Sig.
	B	Std. Error	Beta		
(Constant)	,875	,224		3,912	,000
1 Kepemimpinan_X1	,167	,071	,165	2,361	,021
2 Motivasi Kerja_X2	,204	,062	,281	3,283	,002
3 Kompensasi_X3	,463	,057	,560	8,099	,000

a. Dependent Variable : Kinerja (Y)

Sumber : Pengolahan Data SPSS 25

Figure 9 Heteroscedasticity Test

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Coefficients[a]					
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1 Leadership X_1	,167	,071	,165	2,361	,021
2 Work Motivation X_2	,204	,062	,281	3,283	,002
3 Compensation X_3	,463	,057	,560	8,099	,000

a. Dependent Variable : Kinerja (Y)

Sumber : Pengolahan Data SPSS 25

Figure 10 t-test for Individual Coefficients

$$Y = 0{,}875 + 0{,}167X_1 + 0{,}204X_2 + 0{,}463X_3$$

The results of the partial significance test (t-test) were conducted with a sample size of n = 87, and the number of independent variables (k = 3). Therefore, the degrees of freedom were calculated as df = n - k = 87 - 3 = 84. At a significance level of α = 5% (0.05), the critical value for t-table was determined to be 1.988.

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error the Estima
1	,895[a]	,802	,795	,1786

a. Predictors : (Constant), Compensation X_3, Leadership X_1, Work Motivation

b. Dependent Variable : Performance Y

Sumber : Pengolahan Data SPSS 25

Figure 11 Coefficient of Determination (R^2)

Based on the table, the Adjusted R Square value is 0.795, which represents the coefficient of determination. This means that 79.5% of the variance in employee performance can be explained by the variables of leadership, work motivation, and compensation. The remaining 20.5% is attributed to other factors outside the model that may influence the performance of employees in the Shared Services & Support Division of PT. XYZ.

Work Sampling Observation:

From a total of 84 observations, the proportion of productive and non-productive activities:

- Productive activities: 65 observations
- Non-productive activities: 19 observations

This suggests that while the majority of work time is used effectively, nearly a third is still consumed by unproductive tasks, such as waiting for instructions, system downtime, or informal conversations [19].

Operator	Kegiatan		%Produktif
	Produktif	Non Produktif	
1	16	2	**88,89%**
2	18	8	**69,23%**
3	17	5	**77,27%**
4	14	4	**77,78%**

Sumber: Pengolahan Data

Figure 12 Productive and Non-Productive Activity Frequency

$$UL = 0{,}90 + 3\sqrt{\frac{0{,}90(1+0{,}90)}{18}}$$

$$UL = 1{,}11$$

$$LL = 0{,}90 - 3\sqrt{\frac{0{,}90(1+0{,}90)}{18}}$$

$$LL = 0{,}69$$

Figure 13 Uniformity Test of Operator 1

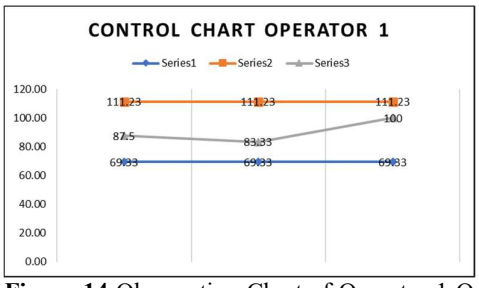

Figure 14 Observation Chart of Operator 1 Over a Three-Day Period

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$$UL = 0{,}69 + 3\sqrt{\frac{0{,}69(1+0{,}69)}{26}}$$

$$UL = 0{,}96$$

$$LL = 0{,}69 - 3\sqrt{\frac{0{,}69(1+0{,}69)}{26}}$$

$$LL = 0{,}41$$

Figure 15 Uniformity Test of Operator 2

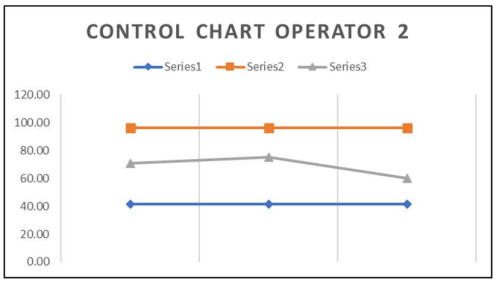

Figure 16 Observation Chart of Operator 2 Over a Three-Day Period

$$UL = 0{,}77 + 3\sqrt{\frac{0{,}77(1+0{,}77)}{22}}$$

$$UL = 1{,}04$$

$$LL = 0{,}77 - 3\sqrt{\frac{0{,}77(1+0{,}77)}{22}}$$

$$LL = 0{,}50$$

Figure 17 Uniformity Test of Operator 3

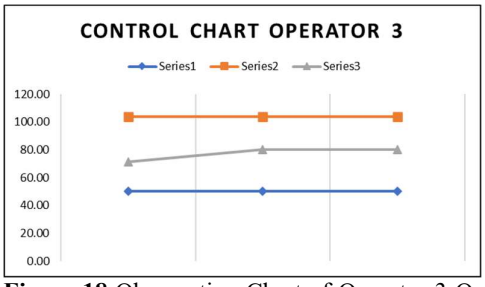

Figure 18 Observation Chart of Operator 3 Over a Three-Day Period

$$UL = 0{,}75 + 3\sqrt{\frac{0{,}75(1+0{,}75)}{18}}$$

$$UL = 1{,}06$$

$$LL = 0{,}75 - 3\sqrt{\frac{0{,}75(1+0{,}75)}{18}}$$

$$LL = 0{,}45$$

Figure 19 Uniformity Test of Operator 4

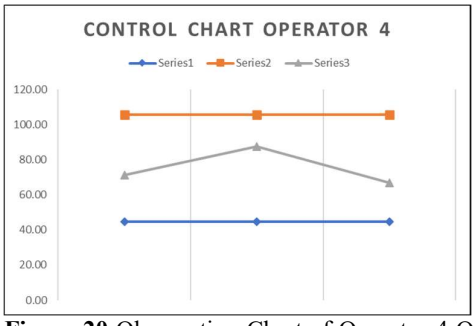

Figure 20 Observation Chart of Operator 4 Over a Three-Day Period

Kegiatan	Frekuensi Teramati Pada Hari ke-			Jumlah
	1	2	3	
Produktif	29	23	13	65
Non Produktif	10	5	4	19
Jumlah	39	28	17	84
%Produktif	**74,4**	**82,1**	**76,5**	**77,38%**

Sumber: Pengolahan Data

Figure 21 Productive and Non-Productive Activity Frequency 1-4 Operators

$$UL = 0{,}78 + 3\sqrt{\frac{0{,}78(1+0{,}78)}{84}}$$

$$UL = 0{,}91$$

$$LL = 0{,}78 - 3\sqrt{\frac{0{,}78(1+0{,}78)}{84}}$$

$$LL = 0{,}64$$

Figure 22 Uniformity Test of Operator 1-4

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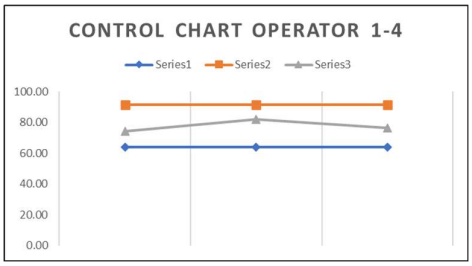

Figure 23 Observation Chart of Operator 1-4 Over a Three-Day Period

The overall observation, conducted on four operators with a total of 84 productivity measurements, indicated that the frequency of worker activities did not exceed the upper and lower control limits. As a result, the data is regarded as uniform and statistically consistent.

Data Sufficiency Testing

The number of observations was determined by applying a precision level of 10% and a confidence level of 90%. Based on the calculation, the required number of observations (N′) was found to be less than the actual number of observations conducted, with N′ = 76 and N = 84. Therefore, the data is considered sufficient for analysis.

Workload Calculation

The productivity percentage reflects the workload that must be completed by the worker to accomplish their tasks. The work activity observations conducted over a three-day period have passed both the data sufficiency test and the data uniformity test. Therefore, the productivity percentage can be calculated using the following formula:

$$Productivity\ Percentage = \left(\frac{65}{84}\right) \times 100\% = 77.38\%$$

The workload for employees in the Shared Services and Support division is derived from this productivity percentage, which amounts to 77.38%. This percentage represents the portion of time during which employees are actively engaged in completing their tasks. Given that the standard working hours are set at 7 hours per day, it can be concluded that approximately 77.38% of this time, or 5.416 hours, is spent on productive activities. The remaining 1.584 hours are considered unproductive, as no productive activities were observed during that period.

The analysis shows that enhancing leadership quality, increasing employee motivation, and providing fair compensation contribute significantly to performance improvements. However, the Work Sampling method reveals latent inefficiencies in time utilization. Therefore, organizational strategies should not only focus on individual motivators but also streamline work processes and communication to minimize non-productive time [20].

CONCLUSION

This study aimed to examine the influence of leadership, work motivation, and compensation on employee performance and its implications for work productivity within the Shared Services & Support Division of PT. XYZ. Utilizing a combination of quantitative regression analysis and qualitative work sampling methodology, the findings provide a comprehensive view of performance dynamics and time utilization in the workplace.

The results of the multiple linear regression analysis indicate that all three independent variables—leadership, work motivation, and compensation—have a positive and statistically significant impact on employee performance. Compensation emerged as the most influential factor with a standardized coefficient of 0.560 ($p < 0.001$), followed by work motivation ($\beta = 0.281$, $p = 0.002$), and leadership ($\beta = 0.165$, $p = 0.021$).

Work sampling observations conducted over three days involving four operators revealed significant variations in productive time. Operator 1 showed the highest productive time (88.89%), while Operator 2 exhibited the lowest (69.23%). The average productive time of 77.38% exceeds the ideal benchmark of 75%, suggesting a heavy workload that may lead to fatigue and long-

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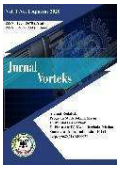

term decreases in productivity. Additionally, the uniformity and adequacy tests confirmed the reliability of the collected data, supporting its use in managerial decision-making. The integration of statistical regression and observational methods emphasizes that sustainable productivity improvement must be rooted in strategic human resource management, particularly through effective leadership practices, motivation-enhancing programs, and fair compensation systems. In conclusion, the synergistic application of quantitative and observational methodologies provides empirical and operational insights into employee performance and time utilization. These findings are expected to serve as a strategic foundation for organizational policy development aimed at enhancing productivity and workforce efficiency..

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