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The Empirical Impact of Leadership Style and Motivation on Employee Work Productivity: A Case Study of CV. Dian Persada Rotarindo in Mojokerto, East Java

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ABSTRACT

This study examines the effects of Leadership Style and Motivation on Productivity. Using random sampling, data were collected from 132 respondents and analyzed via simple linear regression using Minitab 15. The results show that Leadership Style and Motivation simultaneously have a significant positive effect on Productivity ($f_{\text{value}} = 17.83 > f_{\text{table}} = 3.07$; $p = 0.000 < 0.05$). H_0 is rejected, and H_a is accepted. However, both variables exhibit a weak relationship correlation ($R = 0.466$) and account for only 21.7% of the variance in Productivity, while the remaining 78.3% is influenced by unexamined factors. To enhance work productivity, organizations should focus on improving leadership and motivation dimensions, specifically through integrity, fairness, socialization, and discipline.

Keywords: Leadership Style, Motivation, Productivity, Integrity, Discipline.

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INTRODUCTION

Rapid economic growth, globalization, and technological advancements force companies to operate efficiently to survive intense market competition. In this dynamic business landscape, Human Resources (HR) serve as the vital driving force to achieve organizational goals. While high-quality HR enhances productivity, its optimization heavily relies on effective leadership to manage activities, time management, and workplace discipline. According to Sulistiyani & Teguh (2008), successful leadership is determined by specific core skills: capacity, competence, and personality. A leader with strong integrity and character serves as a role model, boosting employee morale and motivation.

Furthermore, recent studies reinforce that modern organizational challenges require adaptive and human-centered leadership styles. Contemporary empirical evidence (Zulvia et al., 2025; Asepta & Soetjipto, 2025) demonstrates that supportive and communicative leadership styles serve as the primary drivers of employee performance, where open communication directly reduces turnover intentions and psychological stress. In contrast, rigid or overly strict oversight, as highlighted by modern human resource theories (Suliztyanto et al., 2023; Jamal, 2024), significantly diminishes employee motivation, dampens creativity, and ultimately causes sharp declines in overall operational output over time.

However, a preliminary observation at CV. Dian Persada Rotarindo—an export-oriented wood processing company in Mojokerto, East Java—revealed several critical phenomena regarding leadership and employee productivity that conflict with these modern leadership paradigms. It was found that some leaders still adopt an authoritarian and rigid leadership style, imposing heavy workloads without considering the employees' work environment or psychological well-being. This lack of a humanistic and supportive approach has created a tense organizational climate, leading to frequent interpersonal conflicts.

Consequently, these leadership issues have directly triggered a decline in employee motivation. Workers exhibit symptoms of low morale, such as absenteeism, poor time discipline, and a lack of enthusiasm toward their tasks. Because employees feel discouraged from sharing ideas or expressing opinions, their engagement drops, which ultimately disrupts the production stability of the wood processing and pallet manufacturing line.

To navigate rapid technological shifts and ensure smooth export operations, CV. Dian Persada Rotarindo urgently requires a leadership transformation that can actively motivate employees and cultivate a supportive working culture. Therefore, this study aims to examine these issues empirically.

LITERATURE REVIEW

Productivity Dynamics

In the contemporary business landscape, productivity is no longer viewed merely as a mechanical ratio of physical outputs to resource inputs. Rather, it is defined as a dynamic

capability to optimize technology, workflows, and human capital to eliminate operational waste (Aguiar et al., 2022). Recent shifts toward hybrid work models and digital transformation have redefined organizational productivity, emphasizing that sustainable output gains depend heavily on workplace flexibility and the continuous upskilling of the workforce (Gartner, 2023).

Consequently, modern productivity serves as a holistic performance metric driven by two interconnected pillars: effectiveness—the strategic alignment of quality, quantity, and timely deliverables—and efficiency—the optimization of resource-to-cost ratios through lean processes (Neirotti et al., 2021). At the individual level, productivity reflects an employee's capacity to synthesize cognitive skills, digital tools, and physical capabilities to achieve structured goals within dynamic environments (Toniolo et al., 2020).

Job Productivity Indicators

Job productivity indicators are critical metrics used to evaluate how effectively human resources are leveraged to achieve organizational strategic goals. Adapting classic frameworks into modern performance management, employee productivity can be operationalized through two distinct dimensions:

Core Dimensions

- **Effectiveness:** The precise execution of tasks meeting stringent quality standards, volume targets, and strict project timelines (Sjöberg et al., 2021).
- **Efficiency:** The optimization of resource utilization, measured through benefit-to-cost, cost-to-output, and time-to-resource ratios (Neirotti et al., 2021).

Key Behavioral Indicators

To evaluate high productivity in the modern knowledge economy, organizations look beyond manual output and focus on proactive behavioral metrics (Spagnoli et al., 2020; Aguiar et al., 2022):

- **Proactive Performance (Exceeding Standards):** Consistently performing beyond baseline job descriptions and driving continuous improvement.
- **Intrinsic Motivation:** Exhibiting autonomous drive and resilience, especially in autonomous or remote work settings.
- **Growth-Oriented Mindset:** Maintaining a constructive, adaptable attitude toward organizational change and technological adoption.
- **Accountability:** Taking full ownership of individual deliverables and systemic outcomes.
- **Interpersonal Synergy:** Demonstrating high collaborative efficacy and communication fluency within cross-functional teams.

Theoretical Framework of Leadership Style

Leadership style is conceptualized as a consistent pattern of behaviors, traits, and strategies deployed by a leader to influence, motivate, and direct subordinates toward achieving organizational objectives (Sutrisman & Dedi, 2021). Rather than a rigid set of personality traits, contemporary organizational management views leadership as a dynamic behavioral execution that reflects a leader's core beliefs regarding employee capabilities (Uzuegbu & Nnadozie, 2023).

Modern studies emphasize that effective leadership functions as an institutional

catalyst. It fosters organizational justice, champions corporate vision, and actively resolves complex workplace issues while optimizing employee performance and job satisfaction (Sani et al., 2024). Ultimately, leadership style is a strategic combination of skills and attitudes that shapes the overall psychological climate and operational direction of an organization (Zafar et al., 2022).

Leadership Style Indicators (Situational Leadership Approach)

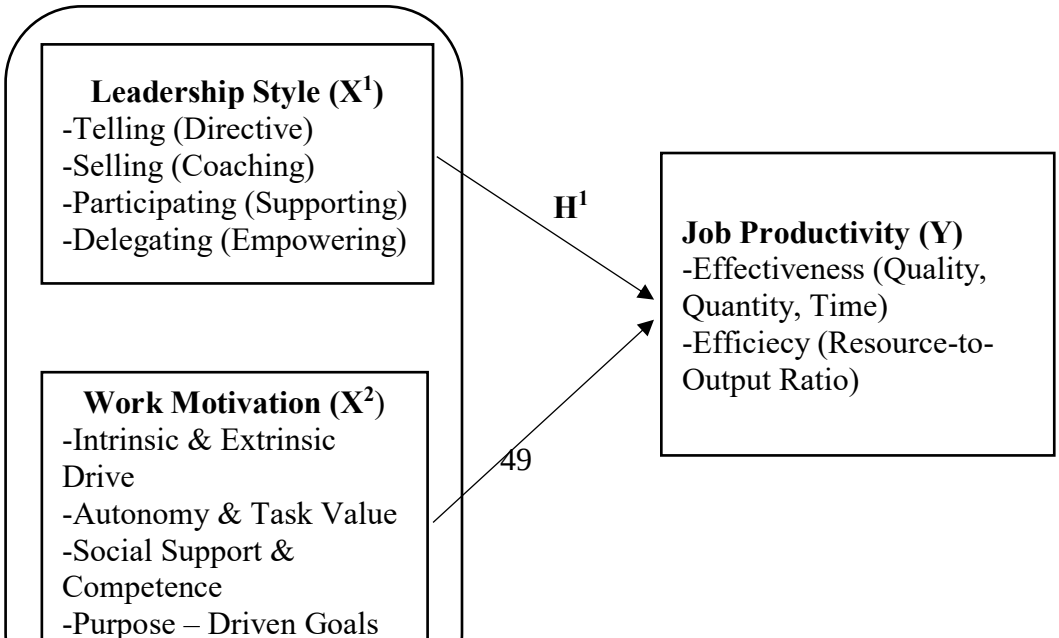
To operationalize leadership behavioral patterns, contemporary research continues to adapt the classic Hersey-Blanchard Situational Leadership model, which evaluates leadership through a matrix of task-oriented and relationship-oriented behaviors (Asbari et al., 2021; Thompson & Glasø, 2024). This approach is broken down into four modern indicators:

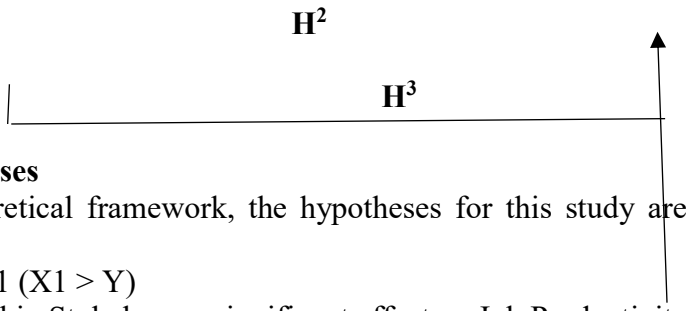
- **Telling (Directive Style):** High task/low relationship focus. The leader explicitly defines the roles, tasks, and operational expectations of subordinates, leaving minimal room for individual employee autonomy. This is crucial for onboarding or crisis management.
- **Selling (Coaching Style):** High task/high relationship focus. The leader structures clear operational directives while simultaneously fostering intense communication and emotional support. This style clarifies employee roles while providing the necessary motivational backing to execute tasks.
- **Participating (Supporting Style):** Low task/high relationship focus. The leader reduces directive guidance and shifts toward a facilitating role. In this phase, leaders encourage active employee participation in decision-making processes to drive internal engagement.
- **Delegating (Empowering Style):** Low task/low relationship focus. The leader limits direct intervention and operational oversight, passing significant autonomy and execution authority over to highly competent and self-driven subordinates.
-

Conceptual Framework

A conceptual framework serves as a theoretical model that illustrates how various identified variables and factors interconnect to address the core research problem. It visually and structurally outlines the hypothesized relationships between the independent and dependent variables under study.

Based on the theoretical background established for this study, the conceptual framework is structured as follows:





Research Hypotheses

Based on the theoretical framework, the hypotheses for this study are formulated as follows:

- Hypothesis 1 (X1 > Y)
  - H1: Leadership Style has no significant effect on Job Productivity.
  - Ha1: Leadership Style has a positive and significant effect on Job Productivity.
- Hypothesis 2 (X2 > Y)
  - H02: Work Motivation has no significant effect on Job Productivity.
  - Ha2: Work Motivation has a positive and significant effect on Job Productivity.
- Hypothesis 3 (X1, X2 > Y simultaneously)
  - H03: Leadership Style and Work Motivation simultaneously have no significant effect on Job Productivity.
  - Ha3: Leadership Style and Work Motivation simultaneously have a positive and significant effect on Job Productivity.

RESEARCH METHOD

Research Approach

This study employs a quantitative associative research approach. An associative approach is systematically designed to analyze the nature, direction, and magnitude of relationships or causal influences between two or more variables (Apuke, 2021). The selection of a quantitative method is justified by its capacity to objectively test hypotheses using mathematical modeling and deductive statistical analysis, which ensures higher reliability, replicability, and generalization of the findings (schoonenboom & Johnson, 2022).

Operational Definition of Variables

An operational definition translates abstract theoretical concepts into measurable, empirical metrics, establishing a clear protocol for data collection and measurement instrument design (Sugiyono, 2021; Babbie, 2024). It provides precise scientific information that allows future researchers to replicate the measurement framework under identical conditions.

The operational matrix for this research comprises three primary variables:

1. Independent Variable 1 (X1): Leadership Style *Operated as:* The behavioral patterns (Telling, Selling, Participating, Delegating) used by leaders to direct and influence subordinates.
2. Independent Variable 2 (X2): Work Motivation *Operated as:* The internal and external psychological drives (intrinsic, extrinsic, autonomy, social support) that stimulate worker engagement.

3. Dependent Variable (Y): Job Productivity *Operated as:* The performance metrics measuring the effectiveness (quality and quantity) and efficiency (resource-to-output ratios) of employee deliverables.

Data Sources and Types

To ensure empirical validity, this study synthesizes both primary and secondary data sources, focusing strictly on quantitative measurements to map the structural relationships between the variables (Babbie, 2024).

- Primary Data: Gathered directly at the source through structured field interviews with corporate management, followed by the administration of closed-ended questionnaires to the employees of CV. Dian Persada Rotarindo.
- Secondary Data: Acquired through systematic desk research, including peer-reviewed scientific journals, academic literature, and verified institutional databases (Snyder, 2020).

Data Classification

While qualitative field observations were conducted to contextualize the work environment, this study relies fundamentally on quantitative data. Following modern research frameworks, qualitative insights (such as survey responses) are systematically transformed into numerical data using structured psychometric scales to allow for robust mathematical modeling and deductive statistical analysis (Apuke, 2021).

Population, Sampling Technique, and Sample Size

- Target Population

  A population represents the collective universe of subjects possessing specific, observable characteristics defined by the boundaries of the study (Sugiyono, 2021). The target population for this research comprises all active employees currently under contract at CV. Dian Persada Rotarindo, totaling 200 individuals.
- Sampling Design and Technique

  To select a representative subset from the population, this study utilizes a Non-Probability Sampling approach via a Purposive Sampling method.

Validity Testing

To ensure structural and construct validity, this study utilizes Pearson Product-Moment Correlation. Each individual questionnaire item score is correlated against the total composite score of the respective variable (Hair et al., 2022). Statistically, an item is declared valid if its calculated correlation coefficient exceeds the critical value from the r-table at a 5% significance level (alpha = 0.05). Items failing to meet this threshold are systematically excluded from subsequent analysis.

Reliability Testing

Reliability evaluates the internal consistency, stability, and precision of the psychometric instruments across different temporal periods (Sugiyono, 2021). This study applies Cronbach's Alpha (alpha) coefficients to measure reliability. The decision rule for internal consistency is structured as follows (Taber, 2018; Hair et al., 2022):

- If Cronbach's Alpha (α) ≥ 0.60, the research instrument is classified as highly reliable and stable.
- If Cronbach's Alpha (α) < 0.60, the instrument is deemed unreliable and rejected.

Statistical Modeling

Multiple Linear Regression Analysis

While simple linear regression measures a bivariate relationship, this study utilizes Multiple Linear Regression Analysis to simultaneously examine the direction and magnitude of the causal effects exerted by multiple independent variables on a single interval-scaled dependent variable (Montgomery et al., 2021). This modeling approach isolates the unique predictive power of Leadership Style (X1) and Work Motivation (X2) over employee Job Productivity (Y). The data is mathematically modeled using the following structural equation:

$$Y = \alpha + \beta 1\ X1 + \beta 2\ X2 + e$$

Where:

- Y = Job Productivity (Dependent Variable)
- α = Constant intercept
- β1, β2 = Regression coefficients for X1 and X2
- X1 = Leadership Style (Independent Variable 1)
- X2 = Work Motivation (Independent Variable 2)
- ė = Error term (residual variance)

Hypothesis Testing and Model Goodness-of-Fit

Partial Hypothesis Testing (t-Test)

The t-test evaluates the statistical significance of the individual linear relationship between each independent variable (X) and the dependent variable (Y) (Hair et al., 2022). The statistical decision rules are formulated as follows:

- If $t_{calculated} > t_{table}$ at a significance level of α= 0.05, H_0 is rejected, indicating a significant individual effect of X on Y.
- If $t_{calculated} < t_{table}$ at a significance level of α= 0.05$, H_0 is accepted, indicating no significant individual effect of X on Y.

The critical t-value is determined using the degree of freedom equation:

$$df = n - k - 1$$

(where n is the sample size, and k is the number of independent variables).

Simultaneous Hypothesis Testing (F-Test)

The F-test determines whether all independent variables (X1 and X2) simultaneously exert a significant joint effect on the dependent variable (Y) (Montgomery et al., 2021). The statistical decision rules are:

- If $F_{calculated} > F_{table}$ at α= 0.05, H_0 is rejected, proving that the independent variables simultaneously and significantly influence Y.
- If $F_{calculated} < F_{table}$ at α= 0.05, H_0 is accepted, proving no simultaneous influence.

The critical F-value is determined using the joint degrees of freedom:

$$df1 = k \text{ and } df\_2 = n - k\$\$$$

Coefficient of Determination (R^2)

The Coefficient of Determination (R^2) measures the goodness-of-fit of the regression model. It quantifies the proportion (or percentage) of the total variance in the dependent

variable (Y) that can be explained and predicted by the variation of the independent variables (X1 and X2) (Wooldridge, 2020).
An R^2 value closer to 1.00 implies that the independent variables possess high explanatory power, rendering the structural model highly accurate for forecasting and empirical estimations.

RESULTS AND DISCUSSION

Following the empirical methodology, a total of 133 questionnaires were distributed to the target respondents at CV. Dian Persada Rotarindo. Out of these, 132 completed questionnaires were successfully recovered, yielding an exceptionally high response rate of 99.25%. A meticulous data-cleaning process was conducted on the returned instruments, confirming that all 132 responses were fully complete, valid, and met the rigorous eligibility criteria for advanced statistical testing. The finalized dataset was subsequently processed using statistical software to execute the regression models and test the hypothesized relationships established in this study.

Validity Testing for Leadership Style (X1)

To evaluate the construct validity of the Leadership Style (X1) instrument, a Pearson Product-Moment Correlation analysis was executed. The dataset comprises ordinal responses derived from a final sample of 132 respondents (n = 132). The measurement scale for this variable consists of 7 structural questionnaire items. Statistically, an item is verified as valid if its calculated correlation coefficient ($r_{calculated}$) exceeds the critical value from the r-table (r_{table}) at a 5% significance level (α= 0.05). The empirical results of the validity analysis for variable X1 are detailed in the table below:

Table 1
Validity Testing Results for the Leadership Style Variable (X_1)

Statements	r hitung	r tabel	Description
1	0.384	0.172	Valid
2	0.712	0.172	Valid
3	0.674	0.172	Valid
4	0.540	0.172	Valid
5	0.349	0.172	Valid
6	0.459	0.172	Valid
7	0.399	0.172	Valid

With a sample size of n = 132 and a two-tailed significance level of 5% (α= 0.05), the critical value from the r-table is established at 0.172 (Hair et al., 2022). To evaluate the validity of each instrument item, the calculated Pearson correlation coefficients ($r_{calculated}$) are benchmarked against this critical threshold, as detailed in Table 1. Following standard

psychometric validation protocols, an item is statistically verified as valid if its correlation coefficient is positive and strictly exceeds the critical value ($r_{calculated} > 0.172$) (Field, 2020; Babbie, 2024). This empirical confirmation demonstrates that all measured indicators possess sufficient construct validity to accurately reflect the underlying dimensions of the Leadership Style (X1) variable.

Validity Testing for Work Motivation (X2)

To evaluate the construct validity of the Work Motivation (X2) instrument, a Pearson Product-Moment Correlation analysis was conducted. The analysis utilized ordinal dataset responses from the verified sample of 132 respondents (n = 132). The structural framework for this variable is operationalized through 6 distinct questionnaire items.

The empirical validation dictates that an item is confirmed as valid if its calculated correlation coefficient ($r_{calculated}$) is positive and greater than the critical value from the r-table ($r_{table} > 0.172$) at a 5\% significance level ($\alpha = 0.05$). The empirical findings for variable X2 are consolidated in the table below:

Table 2
Validity Testing Results for the Work Motivation Variable (X2)

Statements	r hitung	r tabel	Description
1	0.557	0.172	Valid
2	0.539	0.172	Valid
3	0.240	0.172	Valid
4	0.629	0.172	Valid
5	0.443	0.172	Valid
6	0.368	0.172	Valid

With a sample size of n = 132 and a two-tailed significance level of 5% ($\alpha = 0.05$), the critical value from the r-table is established at 0.172. To evaluate the construct validity of each instrument item, the calculated Pearson correlation coefficients ($r_{calculated}$) are benchmarked against this critical threshold, as detailed in Table 2. In accordance with standard psychometric validation protocols, a measurement item is statistically verified as valid if its correlation coefficient is positive and strictly exceeds the critical value ($r_{calculated} > 0.172$). The empirical results confirm that all 6 structural indicators for the Work Motivation (X2) variable meet these criteria, proving they are highly valid for further econometric modeling**.**

Validity Testing for Job Productivity (Y)

To evaluate the construct validity of the Job Productivity (Y) instrument, a Pearson Product-Moment Correlation analysis was conducted. The analysis utilized ordinal dataset responses from the verified sample of 132 respondents (n = 132). The structural

framework for this dependent variable is operationalized through 5 distinct questionnaire items. The empirical findings for variable Y are consolidated in the table below:

Table 3
Validity Testing Results for the Job Productivity Variable (Y)

Statements	r hitung	r tabel	Description
1	0.631	0.172	Valid
2	0.665	0.172	Valid
3	0.474	0.172	Valid
4	0.491	0.172	Valid
5	0.288	0.172	Valid

With a sample size of n = 13$ and a two-tailed significance level of 5% (α= 0.05), the critical value from the r-table is established at 0.172. To evaluate the construct validity of each instrument item, the calculated Pearson correlation coefficients ($r_{calculated}$) are benchmarked against this critical threshold, as detailed in Table 3. In accordance with standard psychometric validation protocols, a measurement item is statistically verified as valid if its correlation coefficient is positive and strictly exceeds the critical value ($r_{calculated} > 0.172$). The empirical results confirm that all 5 structural indicators for the Job Productivity (Y) variable meet these criteria, proving they are highly valid and eligible for further econometric modeling.

Correlation Matrix and Inter-Variable Reliability Analysis
To evaluate the strength, direction, and statistical significance of the linear relationships among the research constructs, a Pearson Correlation Analysis was performed. Additionally, the diagonal elements anchor the internal consistency coefficients for each measurement scale. Table 4 systemizes the empirical outputs.

Table 4
Correlation Matrix and Reliability Coefficients (n = 132)

Research Variables	Leadership Style (X1)	Work Motivation (X2)	Job Productivity (Y)
Leadership Style (X1)	**(0.852)**		
p-value	—		

Work Motivation (X2)	0.427	**(0.753)**	
p-value	*(0.000)*	—	
Job Productivity (Y)	0.366	0.416	**(0.700)**
p-value	*(0.000)*	*(0.000)*	—

Empirical Interpretation

Construct Reliability Analysis

The diagonal entries in Table 4 detail the Cronbach's Alpha (α) values used to evaluate the internal consistency of each scale.

- Leadership Style (X1) shows excellent reliability (α= 0.852).
- Work Motivation (X2) demonstrates strong stability (α = 0.753).
- Job Productivity (Y) comfortably surpasses the empirical threshold (α = 0.700).

Because all metrics strictly exceed the standard threshold (α ≥ 0.60), all three measurement scales are confirmed as highly reliable and free from random variance.

Inter-Variable Correlation Analysis

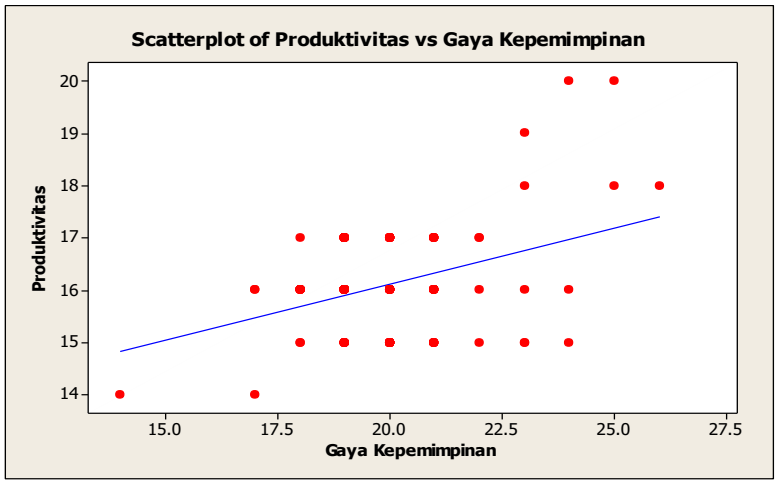
- Leadership Style (X1) vs. Work Motivation (X2): Exhibits a positive and statistically significant correlation (r = 0.427, p < 0.001). This indicates that stronger leadership behaviors are moderately linked to enhanced psychological drive among employees.
- Leadership Style (X1) vs. Job Productivity (Y): Demonstrates a positive, statistically significant linear relationship (r = 0.366, p < 0.00). This confirms that higher leadership efficacy directly correlates with greater job outputs.
- Work Motivation (X2) vs. Job Productivity (Y): Displays a strong, positive, and highly significant correlation (r = 0.416, p < 0.00$), indicating that highly motivated employees are fundamentally associated with optimized productivity levels.

Bivariate Linear Regression Analysis

To isolate and evaluate the explicit linear relationship between the independent variables and the dependent variable, bivariate (simple) linear regression analyses were executed. The empirical parameters and estimation coefficients generated by the statistical software are structured as follows:

Grafic 1

Regression Plot of Job Productivity (Y) versus Leadership Style (X1)



Regression Analysis: Leadership Style (X1) on Job Productivity (Y)

The bivariate linear regression analysis evaluates the explicit empirical effect of Leadership Style (X1) on Job Productivity (Y). Based on the statistical processing of the primary data, Grafic 1 visually demonstrates a distinct positive linear relationship between the two constructs. The formalized structural equation is expressed as follows:

Job Productivity (Y) = 11.796 + 0.216 x Leadership Style (X1)

Table 5
Bivariate Regression Results: Leadership Style (X1) on Job Productivity (Y)

Predictor	Coefficient (β)	SE Coefficient	t-statistic	p-value
Constant (α)	11.7960	0.9636	12.24	< 0.001
Leadership Style (X1)	0.2160	0.0482	4.48	< 0.001

Model Summary:

- S = 0.9225
- R-Sq = 13.4%
- R-Sq(adj) = 12.7\%

Table 6
Analysis of Variance (ANOVA) for the Regression Model

Source of Variation	Degree of Freedom (df)	Sum of Squares (SS)	Mean Square (MS)	F-statistic	p-value
Regression	1	17.084	17.084	20.07	< 0.001
Residual Error	130	110.636	0.851		
Total	131	127.720			

Source: Primary Data Processed (2026).

Empirical Interpretation

Based on the statistical parameters estimated in the regression model, the structural relationship between Leadership Style (X1) and Job Productivity (Y) is interpreted through the following specific insights:

1. Direction of the Relationship ($\beta > 0$): The regression coefficient for Leadership Style yields a positive value ($\beta = 0.216$). Because this parameter is strictly greater than zero ($\beta > 0$), it empirically confirms that Leadership Style (X1) maintains a direct, positive linear relationship with employee Job Productivity (Y).
2. Intercept Constant ($\alpha = 11.796$): The constant intercept value of 11.796 signifies that if the independent variable, Leadership Style (X1), is held completely static or constant at zero, the baseline value of employee Job Productivity (Y) is fundamentally established at 11.796 units.
3. Predictive Effect of the Coefficient ($\beta = 0.216$): The regression slope coefficient of 216 establishes the precise magnitude of chang within the model. This dictates that for every marginal increase of one unit in the Leadership Style (X1) score, employee Job Productivity (Y) will systematically increase by 0.216 units, assuming all other structural conditions remain equal.

Multiple Linear Regression Analysis: Leadership Style and Motivation on Work Productivity

To evaluate the simultaneous and individual effects of Leadership Style (X1) and Motivation (X2) on Work Productivity (Y), a multiple linear regression analysis was performed using Minitab 15. The statistical output is formulated into the following equation:

Productivity = 8.05 + 0.136 (Leadership Style) + 0.291 (Motivation)

Hypothesis Testing and Interpretation

Based on the regression equation and ANOVA results, the findings are interpreted as follows:

- Baseline Productivity (Constant = 8.051)

  The intercept value of 8.051 implies that if both Leadership Style (X1) and Motivation (X2) are absent or held constant at zero, the baseline level of Employee Work Productivity (Y) remains at 8.051 units.
- The Positive Impact of Leadership Style (X1)

  The regression coefficient for Leadership Style is 0.136. This indicates a direct, positive relationship with productivity; every one-unit improvement in leadership quality yields a 0.136-unit increase in Work Productivity, provided other variables remain constant. This effect is statistically significant ($t = 2.67$, $p = 0.009 < 0.05$). This alignment supports the theory that effective leadership behaviors directly stimulate workforce outputs (Bass & Avolio, 1994).
- The Positive Impact of Motivation (X2)

  The coefficient for Motivation is 0.291, reflecting a strong positive relationship. Holding Leadership Style constant, a one-unit increase in employee motivation enhances Work Productivity by 0.291 units. Statistically, this variable exhibits high significance ($t = 3.69$, $p = 0.000 < 0.05$), validating the premise that psychological drives heavily dictate performance intensity (Robbins & Judge, 2018).

Model Fitness and Predictability

Statistical Metric	Value	Academic Interpretation
Coefficient of Determination (R^2)	**21.7%**	Approximately 21.7% of the variance in Work Productivity is collectively explained by Leadership Style and Motivation. The remaining 78.3% is governed by external variables outside the scope of this model.
F-Statistic (Simultaneous Test)	**17.83** (p = 0.000)	The F-value of 17.83 with a highly significant p-value ($p < 0.001$) confirms that the overall regression model is robust. Leadership Style and Motivation simultaneously exert a critical influence on Work Productivity.

Hypothesis Testing

Partial Effect of Leadership Style (X1) on Work Productivity (Y)

To determine whether Leadership Style (X1) exerts a statistically meaningful partial effect on Work Productivity (Y), a t-test was conducted. Based on the Minitab 15 output, the calculated t-value (tcount) is 2.67, which exceeds the critical t-table value (ttable) of 1.97 for N = 132 (2.67 > 1.97). Consequently, the null hypothesis (H0) is rejected, and H1 is accepted. This confirms that Leadership Style has a significant positive partial effect on employee Work Productivity.

Partial Effect of Motivation (X2) on Work Productivity (Y)

The partial significance of Motivation (X2) on Work Productivity (Y) was similarly evaluated using a t-test. The statistical analysis generated a t_count of 3.69, surpassing the ttable threshold of 1.97 (3.69 > 1.97). Therefore, H0 is rejected and H2 is accepted, demonstrating that Motivation exerts a highly significant positive partial influence on Work Productivity.

Simultaneous Effect of Leadership Style (X1) and Motivation (X2) on Work Productivity (Y)

An F-test was utilized to observe the simultaneous effect of both independent variables on the dependent variable. The Minitab 15 results reveal an F-count (Fcount) of 17.83, which is substantially larger than the F-table value (Ftable) of 3.07 (17.83 > 3.07). Thus, H0 is rejected and H3 is accepted.

This empirical evidence proves that Leadership Style (X1) and Motivation (X2) simultaneously drive Work Productivity (Y) at CV. Dian Persada Rotarindo in Mojokerto, East Java. Econometrically, higher quality leadership and stronger employee motivation linearly yield higher organizational productivity (Saputra & Wardoyo, 2023).

Significance Analysis

The probability values (p-values) derived from the regression models further substantiate the significance of these relationships:

1. Leadership Style (X1→ Y): The regression model yields a significance value of 0.009 ($p < 0.05$), confirming that Leadership Style significantly dictates changes in Work Productivity.

2. Motivation (X2→Y): The analysis shows a significance level of 0.000 ($p < 0.05$), validating Motivation as a highly critical predictor of Work Productivity.
3. Simultaneous Model (X1, X2 → Y): The joint regression framework indicates an overall significance value of 0.000 ($p < 0.05$). This indicates that the combination of effective leadership and high motivation is highly reliable in predicting shifts in employee performance.
4.

Model Summary Analysis (Coefficient of Determination)

The predictive power of each model is evaluated through the Coefficient of Determination (R2):

Model Structural Pathway	R-Sq (R2) Value	Unexplained Variance (External Factors)	Strategic Interpretation
Leadership Style (X1)→ Productivity (Y)	**13.4%**	86.6%	Leadership behaviors independently account for 13.4% of employee productivity trends.
Motivation (X2) →Productivity (Y)	**17.3%**	82.7%	Individual psychological motivation acts as a stronger standalone driver, contributing 17.3% to productivity.
Simultaneous Model (X1,X2) →Productivity (Y)	**21.7%**	78.3%	When integrated, both variables explain 21.7% of the variance in Work Productivity at CV. Dian Persada Rotarindo, while the remaining 78.3% is governed by variables outside this study's scope (e.g., work environment, compensation).

Correlation Coefficient Analysis (r)

The correlation coefficient (r) measures the strength and direction of the linear relationship between variables. Mathematically, it is derived as the square root of the coefficient of determination, formulated as:

$$r = \sqrt{R\text{-Sq}}$$

Based on this mathematical formulation, the empirical relationships between the variables are analyzed as follows:

Correlation of Leadership Style (X1) on Work Productivity (Y)

The calculation yields a correlation coefficient (r) of 0.366. According to standard statistical classification intervals, this value indicates a weak but positive relationship. This implies that while improvements in leadership style linearly align with higher work productivity, the individual pairing exhibits a low-to-moderate binding intensity (Schober et al., 2018; Setiawan & Indradewa, 2021).

Correlation of Motivation (X2) on Work Productivity (Y)
The correlation coefficient (r) for employee motivation is 0.415. This statistical output falls within the 0.40 - 0.59 interval, signifying a moderate (sufficient) positive relationship. Higher intrinsic and extrinsic motivation structurally correlates with a substantial increase in employee output (Guterres et al., 2020).

Simultaneous Correlation of X1 and X2 on Work Productivity (Y)
When evaluated simultaneously, the multiple correlation coefficient (R) reaches 0.466. This confirms that the joint presence of effective Leadership Style and high Motivation establishes a **moderate and robust** positive relationship with Work Productivity. The combined synergy of these two variables creates a stronger behavioral anchor for productivity compared to when they operate independently (Putra & Utama, 2022).

CONCLUSION

Based on the empirical findings, data analysis, and discussion regarding the effects of Leadership Style and Motivation on Employee Productivity at CV. Dian Persada Rotarindo in Mojokerto Regency, East Java Province, the following conclusions are drawn:

1. The Effect of Leadership Style (X1) on Work Productivity (Y)

Leadership Style independently contributes 13.4% to the variance in Employee Productivity (R2 = 13.4%), while the remaining 86.6% is dictated by external factors unexamined in this study. The correlation coefficient (r = 0.366) indicates a weak but positive linear relationship. Statistically, the impact is highly significant, evidenced by a p-value of 0.009 < 0.05 and a calculated t-statistic that exceeds the critical table threshold (tcount = 2.67 > ttable = 1.97). Consequently, H0 is rejected and H1 is accepted, proving that Leadership Style exerts a significant positive partial effect on Work Productivity.

2. The Effect of Motivation (X2) on Work Productivity (Y)

Work Motivation accounts for 17.3% of the variance in employee outputs (R2 = 17.3%), with the other 82.7% attributed to omitted variables. The correlation analysis yields a value of r = 0.415, demonstrating a moderate and positive association. The relationship is statistically verified by a p-value of 0.000 < 0.05 and a robust t-statistic (tcount = 3.69 > ttable = 1.97$). Hence, H0 is rejected and H2 is accepted, confirming that higher employee motivation structurally drives tangible advancements in Work Productivity.

3. The Simultaneous Effect of Leadership Style (X1) and Motivation (X2) on Work Productivity (Y)

When integrated into a joint framework, Leadership Style and Motivation simultaneously account for 21.7% of the total variance in Work Productivity (R2 = 21.7%), while the remaining 78.3% is influenced by other corporate factors. Together, they share a moderate positive relationship with productivity (R = 0.466). The overall model model fitness is highly significant (p = 0.000 < 0.05), with an F-statistic that substantially surpasses the F-table benchmark (Fcount = 17.83 > Ftable = 3.07). Thus, H0 is rejected and H3 is accepted, validating that optimized leadership behaviors and

well-engineered motivational frameworks simultaneously act as crucial catalysts for escalating organizational productivity (Pradhan & Jena, 2020; Ramadan, 2021).

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