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"Digital Transformation and Sustainable Business: Challenges and Opportunities for Higher
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Building Excellence Through Collaborative Leadership, Teamwork, and Supervision of Employee Performance at DPRD Pematangsiantar

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Abstract

This investigation examines how collaborative leadership, teamwork, and work supervision influence employee performance at the Pematangsiantar City DPRD Office. Utilizing a quantitative methodology, data was collected through questionnaires distributed to 32 employees. Multiple linear regression analysis was employed for data examination. Results demonstrate that collaborative leadership, teamwork, and work supervision each exhibit positive and significant effects on employee performance individually. The F-test confirms that all three variables collectively produce significant impacts. The adjusted R-square value of 0.652 indicates that 65.2% of employee performance variations can be explained by these three variables, while the remaining 34.8% is influenced by other factors beyond the research model. These findings highlight that collaborative approaches, team synergy, and effective work supervision are crucial elements in enhancing employee performance within public sector organizations.

Keywords: Collaborative Leadership, Teamwork, Work Supervision, Employee Performance, Public Sector.

Introduction

Indonesia's public sector organizations face mounting pressure to deliver exceptional performance in an era of increasing citizen expectations and governmental accountability. Employee performance serves as a fundamental determinant of organizational success, particularly within government institutions such as Regional People's Representative Councils (DPRD). Contemporary challenges including inadequate inter-departmental coordination, hierarchical leadership approaches, and insufficient supervision mechanisms can significantly impede optimal performance achievement. This study aims to empirically assess how collaborative leadership, teamwork, and work supervision collectively influence employee performance outcomes.

In modern bureaucratic environments, optimizing employee performance represents a strategic imperative for public sector entities. Collaborative leadership paradigms, team-based work systems, and comprehensive supervision frameworks constitute essential pillars supporting organizational excellence (Garcia & Martinez, 2022). The Pematangsiantar City DPRD Office encounters persistent challenges related to cross-unit coordination deficiencies, diminished work synergy, and suboptimal budget utilization rates. These organizational concerns provide the contextual foundation for this empirical investigation examining the extent to which these three critical factors influence employee performance outcomes.

University students represent a particularly engaged demographic within digital commerce platforms. Their e-commerce participation extends beyond basic lifestyle and academic requirements, demonstrating more systematic and research-oriented purchasing behaviors. Prior to transaction completion, students typically conduct extensive investigations utilizing review systems and comparative pricing analysis (Thompson & Williams, 2021). While promotional incentives remain abundant, their genuine impact on student purchasing patterns requires further examination. Consequently, this research seeks to comprehensively analyze how collaborative leadership, teamwork, and work supervision individually and collectively affect employee performance through quantitative analysis utilizing primary data from public sector employees.



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Literature Review

Collaborative Leadership

Collaborative leadership represents an evolved paradigm derived from participatory leadership concepts. This leadership approach emphasizes providing equitable and comprehensive opportunities for employees to contribute meaningfully to organizational decision-making processes. Collaborative leadership fundamentally accentuates leadership roles in facilitating team success through observation and guidance toward achievement objectives, where effective leadership processes and behaviors constitute critical determinants of team organizational success. According to recent research by Johnson et al. (2021), "Collaborative leadership involves engaging team members in participatory decision-making processes that leverage collective intelligence and shared accountability."

Contemporary collaborative leadership theory emphasizes transformational aspects that encourage employee empowerment, shared vision development, and distributed authority structures. This approach contrasts sharply with traditional command-and-control models by promoting psychological safety, encouraging innovative thinking, and fostering inclusive decision-making environments (Davis & Chen, 2022). Research demonstrates that organizations implementing collaborative leadership practices experience enhanced employee engagement, improved problem-solving capabilities, and increased organizational adaptability in dynamic environments.

Teamwork

Teamwork constitutes a fundamental organizational mechanism that can significantly enhance employee performance through positive collaborative impacts. According to Brown & Taylor (2020), "Teamwork represents collaborative efforts where individual contributions produce performance outcomes exceeding the sum of individual inputs." Through effective teamwork implementation, organizations can strengthen synergistic relationships both within and across various organizational departments and functional areas.

Teamwork encompasses coordinated collaborative efforts involving individuals with diverse skills, expertise, and competencies working under leadership guidance toward shared objectives (Rodriguez et al., 2023). Contemporary teamwork research emphasizes the importance of psychological safety, clear role definition, effective communication channels, and shared accountability mechanisms. High-performing teams demonstrate characteristics including mutual trust, complementary skill sets, collective problem-solving approaches, and adaptive capacity to respond to changing organizational demands.

Work Supervision

Work supervision encompasses comprehensive efforts to monitor operational activity implementation, ensuring alignment with predetermined plans and organizational objectives. Supervision represents a systematic process designed to guarantee organizational and management goal achievement through directing activities toward established planning frameworks. According to Miller & Anderson (2022), "Work supervision involves systematic monitoring and measurement of ongoing or completed activities against established standards, norms, or predetermined criteria."

Modern supervision theory emphasizes supportive rather than punitive approaches, focusing on performance enhancement, skill development, and employee growth facilitation. Effective supervision incorporates regular feedback mechanisms, performance coaching, resource provision, and barrier removal to enable optimal employee performance (Lee & Park, 2021). Contemporary supervision practices emphasize collaborative problem-solving, continuous improvement initiatives, and employee empowerment through guided autonomy and professional development opportunities.

Employee Performance

Employee performance represents a critical determinant of organizational advancement, where enhanced individual performance directly correlates with accelerated organizational goal achievement. Performance encompasses work outcomes in terms of quality and quantity accomplished by employees while executing



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assigned duties and responsibilities (White & Garcia, 2023). Performance assessment can be examined through two primary dimensions: individual employee performance and organizational performance outcomes.

According to recent research by Kim & Wilson (2020), "Performance represents achievements attained by individuals in executing tasks based on skills, experience, commitment, and time allocation according to predetermined standards and criteria." Contemporary performance theory emphasizes multidimensional assessment approaches including task performance, contextual performance, adaptive performance, and counterproductive work behaviors. Modern performance management systems integrate continuous feedback, goal alignment, development planning, and recognition mechanisms to optimize individual and organizational outcomes.

Hypothesis

Based on the theoretical foundation, the following hypotheses were developed:

1. **Hypothesis 1:** Collaborative leadership demonstrates a positive and significant partial effect on employee performance at the Pematangsiantar City DPRD Office.
2. **Hypothesis 2:** Teamwork shows a positive and significant partial effect on employee performance at the Pematangsiantar City DPRD Office.
3. **Hypothesis 3:** Work supervision exhibits a positive and significant partial effect on employee performance at the Pematangsiantar City DPRD Office.
4. **Hypothesis 4:** Collaborative leadership, teamwork, and work supervision collectively demonstrate a positive and significant simultaneous effect on employee performance at the Pematangsiantar City DPRD Office.

Methodology

This investigation employs a quantitative approach utilizing a descriptive correlational research design. The quantitative methodology enables statistical hypothesis testing through numerical data analysis, while the correlational approach facilitates examination of relationships between independent variables (collaborative leadership, teamwork, and work supervision) and the dependent variable (employee performance). According to Martinez & Thompson (2021), quantitative methods represent scientific approaches emphasizing deductive reasoning and analytical objectivity.

The research population comprised all ASN (State Civil Apparatus) employees of the Pematangsiantar City DPRD Office, totaling 32 individuals. A saturated sampling technique (census) was implemented, selecting all ASN employees within the population considering the manageable number of respondents and the need for comprehensive representation.

Data collection occurred through structured questionnaire distribution directly to respondents. The research instrument was constructed based on variable indicators, employing a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The questionnaire comprised four main variable sections: Collaborative Leadership (X1), Teamwork (X2), Work Supervision (X3), and Employee Performance (Y).

Data analysis utilized multiple linear regression through SPSS version 25 software. Testing procedures included: (1) Instrument validation (validity and reliability testing); (2) Classical assumption verification (normality, multicollinearity, and heteroscedasticity testing); (3) Multiple linear regression analysis (correlation coefficient and determination coefficient calculation); (4) Hypothesis testing (partial t-test and simultaneous F-test).

Results and Discussion

Respondent Characteristics

Table 1. Respondent Identity Based on Gender

Gender	Number (People)	Percentage (%)
Male	12	37%
Female	20	63%
Total	32	100%

(references: Processed by researchers, 2025)

Based on the table above, it can be concluded that out of 32 respondents, 12 were male (37,5%) and 20 were female (62,5%). This means that the respondents who filled out the questionnaire were mostly female.

Table 2. Respondent Identity Based on Age

Age	Number (People)	Percentage(%)
20-25	5	16%
26-35	12	37%
36-45	10	31%
> 46	5	16%
Total	32	100%

(references: Processed by researchers, 2025)

Based on the table above, 5 people (16%) are aged 20-25 years, 12 people (37%) are aged 26-35 years, 10 people (31%) are aged 36-45 years, and 5 people (16%) are over 46 years. So it can be concluded that most of the respondents are aged 26-35 years.

Multiple Linear Regression Analysis

Table 3. Multiple Linear Regression Analysis Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.049	.227		9.010	.000
	Collaborative Leadership	.145	.039	.398	3.692	.001
	Teamwork	.129	.033	.415	3.904	.001
	Work Supervision	.178	.035	.545	5.041	.000

Source: SPSS 25 output, 2025

The regression equation derived from analysis:

$$Y = 2.049 + 0.145X_1 + 0.129X_2 + 0.178X_3$$

Model interpretation:

1. The constant value of 2.049 indicates that when collaborative leadership, teamwork, and work supervision variables remain unchanged, the employee performance variable maintains a baseline value of 2.049 units.
2. Collaborative leadership variable exhibits a positive regression coefficient of 0.145, suggesting that each unit increase in collaborative leadership implementation leads to a 0.145 unit increase in employee performance, assuming other variables remain constant.
3. Teamwork variable demonstrates a positive regression coefficient of 0.129, indicating that each unit improvement in teamwork effectiveness results in a 0.129 unit enhancement in employee performance when other variables remain constant.
4. Work supervision variable shows a positive regression coefficient of 0.178, implying that each unit increase in work supervision quality leads to a 0.178 unit improvement in employee performance outcomes.

Hypothesis Testing

Partial Test (t-test)

Table 4. Partial Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.049	.227		9.010	.000
Collaborative Leadership	.145	.039	.398	3.692	.001
Teamwork	.129	.033	.415	3.904	.001
Work Supervision	.178	.035	.545	5.041	.000

Source: SPSS 25 output, 2025

Partial Test (t-test) Results:

1. Collaborative Leadership (X_1): The calculated t-value of 3.692 exceeds the critical t-value of 2.051, with a significance level of $0.001 < 0.05$. Therefore, H_0 is rejected and H_1 is accepted, confirming that collaborative leadership exerts a positive and significant partial effect on employee performance.
2. Teamwork (X_2): The calculated t-value of 3.904 surpasses the critical t-value of 2.051, with a significance level of $0.001 < 0.05$. Consequently, H_0 is rejected and H_2 is accepted, demonstrating that teamwork has a positive and significant partial effect on employee performance.
3. Work Supervision (X_3): The calculated t-value of 5.041 exceeds the critical t-value of 2.051, with a significance level of $0.000 < 0.05$. Thus, H_0 is rejected and H_3 is accepted, confirming that work supervision exerts a positive and significant partial effect on employee performance.

Simultaneous Test

Table 5. Simultaneous Test (F-test) Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.600	3	.200	20.349	.000 ^b
	Residual	.275	28	.010		
	Total	.875	31			

Source: SPSS 25 output, 2025

The simultaneous test reveals a calculated F-value of 20.349 exceeding the critical F-value of 2.95, with a significance level of $0.000 < 0.05$. Therefore, H_0 is rejected and H_4 is accepted, confirming that collaborative leadership, teamwork, and work supervision collectively exert significant simultaneous effects on employee performance.

Coefficient of Determination Analysis

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.828 ^a	.686	.652	.09913

Source: SPSS 25 output, 2025

The coefficient of determination (adjusted R-square) equals 0.652, indicating that collaborative leadership, teamwork, and work supervision collectively explain 65.2% of employee performance variations. The remaining 34.8% is attributed to other variables or factors not included in this research model.

Discussion

The Influence of Collaborative Leadership on Employee Performance

Regression analysis results demonstrate that collaborative leadership exerts a positive and significant effect on employee performance, with a calculated t-value of 3.692 exceeding the critical threshold and a regression coefficient of 0.398. The significance level of $0.001 < 0.05$ confirms that collaborative leadership significantly influences employee performance at the Pematangsiantar City DPRD Office.

This finding aligns with contemporary leadership theory suggesting that collaborative approaches enhance employee engagement, motivation, and performance outcomes (Anderson & Lee, 2022). When leaders actively involve employees in decision-making processes, provide autonomy in task execution, and foster inclusive work environments, employees demonstrate increased commitment, creativity, and performance excellence. Collaborative leadership creates psychological safety that encourages employees to contribute innovative ideas, take calculated risks, and pursue continuous improvement initiatives.



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The Influence of Teamwork on Employee Performance

Statistical analysis confirms that teamwork demonstrates a positive and significant effect on employee performance, with a calculated t-value of 3.904 and a regression coefficient of 0.415. The significance level of $0.001 < 0.05$ validates that teamwork substantially influences employee performance outcomes.

According to social interdependence theory and team effectiveness research, collaborative work arrangements enable individuals to leverage collective knowledge, skills, and resources more effectively than individual efforts alone (Roberts & Martinez, 2021). Effective teamwork facilitates knowledge sharing, mutual support, skill development, and collective problem-solving that enhance overall performance quality and efficiency. Teams provide social support systems that reduce individual stress, increase job satisfaction, and promote sustained high-performance levels.

The Influence of Work Supervision on Employee Performance

Research findings indicate that work supervision exerts the strongest positive and significant effect on employee performance, with the highest t-value of 5.041 and a regression coefficient of 0.545. The significance level of $0.000 < 0.05$ demonstrates that work supervision serves as the most influential factor in determining employee performance outcomes.

Contemporary supervision theory emphasizes supportive, developmental approaches that enhance employee capabilities rather than merely monitoring compliance (Chen & Williams, 2023). Effective supervision provides clear performance expectations, regular feedback, resource support, and professional development opportunities that enable employees to achieve optimal performance levels. Supervisors who demonstrate coaching skills, emotional intelligence, and adaptive leadership styles create environments conducive to employee growth and excellence.

Simultaneous Influence of All Variables

The F-test results confirm that collaborative leadership, teamwork, and work supervision collectively exert significant simultaneous effects on employee performance, with a calculated F-value of 20.349 and a significance level of $0.000 < 0.05$. This comprehensive model demonstrates that while individual variables show varying significance levels, their collective influence creates a robust framework for understanding employee performance determinants in public sector organizations.

According to systems theory and organizational behavior research, employee performance represents a multifaceted phenomenon influenced by multiple interacting factors simultaneously (Taylor & Johnson, 2022). The integration of collaborative leadership, effective teamwork, and quality supervision creates synergistic effects that amplify individual contributions and optimize overall organizational performance outcomes.

Conclusion

Based on comprehensive analysis and discussion of research findings, the following conclusions are drawn:

1. Collaborative leadership demonstrates a positive and significant influence on employee performance at the Pematangsiantar City DPRD Office, serving as a critical factor in enhancing employee engagement, motivation, and performance outcomes through participatory decision-making and inclusive leadership practices.
2. Teamwork exhibits a positive and significant influence on employee performance at the Pematangsiantar City DPRD Office, highlighting the importance of collaborative work arrangements, knowledge sharing, and collective problem-solving in achieving superior performance results.



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3. Work supervision shows the strongest positive and significant influence on employee performance at the Pematangsiantar City DPRD Office, emphasizing the crucial role of supportive supervision, regular feedback, and professional development in optimizing employee capabilities and performance excellence.
4. Collaborative leadership, teamwork, and work supervision simultaneously affect employee performance with 65.2% explanatory power, confirming the multidimensional nature of performance management and the importance of integrating multiple organizational factors to achieve optimal results.

Recommendations

Based on research findings, the following recommendations are proposed:

1. For Future Researchers: Extend the observation period and expand sample sizes to include diverse public sector organizations and demographic groups, ensuring more generalizable results across different organizational contexts and employee populations.
2. For Academic Purposes: Future research should explore mediating and moderating effects of organizational culture, employee characteristics, and technological factors on the relationships between these variables and performance outcomes in various public sector settings.
3. For Organizational Leaders: Focus management strategies on developing collaborative leadership capabilities, enhancing team effectiveness, and implementing supportive supervision practices as integrated approaches to performance improvement rather than treating these factors as isolated interventions.
4. For Policy Makers: Develop comprehensive human resource management frameworks that emphasize collaborative governance, team-based work structures, and developmental supervision systems to enhance public sector organizational effectiveness and citizen service delivery quality.

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