

Analyzing the Effect of Transformational Leadership and Self-Efficacy on Employee Performance through Employee Innovativeness among Employees of PERUMDA Tirtanadi Sunggal Medan

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ABSTRACT

This study analyzes how transformational leadership and self-efficacy influence employee performance at Perumda Tirtanadi KC Sunggal Medan, with employee innovativeness as a mediating variable. Using a quantitative approach with PLS-SEM on census data from 50 employees, the research evaluates both direct and indirect relationships. The results show that transformational leadership does not significantly affect employee innovativeness or performance, likely due to a highly structured, SOP-driven public sector environment. In contrast, self-efficacy has a positive and significant impact on both innovativeness and performance. Employee innovativeness also significantly improves performance and mediates the effect of self-efficacy on performance, but not the effect of transformational leadership. The study concludes that psychological factors—especially self-efficacy and innovative behavior—are more influential than leadership style in enhancing performance within regulated public utility organizations.

INTRODUCTION

Employee performance is a fundamental determinant of organizational success, particularly within public service institutions where the quality of services provided directly affects community welfare. In regional water utilities such as Perumda Tirtanadi KC Sunggal Medan, employee performance plays a critical role in ensuring service continuity, operational reliability, and customer satisfaction. The complexity of daily tasks, limited resources, and the pressure to meet operational targets demand employees who are capable of working effectively, accurately, and under time constraints. Understanding the factors that influence employee performance is therefore essential in strengthening human resource management within the public sector.

One of the factors frequently examined in relation to performance enhancement is leadership style, especially transformational leadership. Transformational leadership is often associated with the ability to inspire, motivate, and stimulate employees to exceed expected performance standards. However, its effectiveness within public sector organizations is not always consistent. Bureaucratic structures, strict hierarchical systems, and the dominance of Standard Operating Procedures (SOPs) often limit the direct influence leaders have on employee behavior. This discrepancy makes transformational leadership an interesting variable to examine, as its outcomes may differ substantially between public service organizations and private-sector settings.

In addition to leadership, psychological factors such as self-efficacy also play a significant role in shaping employee performance. Self-efficacy defined as one's belief in their own ability to successfully execute tasks has been shown to improve persistence, motivation, and resilience when facing demanding workloads. In Perumda Tirtanadi Sunggal, where employees frequently encounter heavy task loads, strict deadlines, and unexpected operational challenges, high levels of self-efficacy become essential for maintaining optimal performance.

Another important factor is employee innovativeness, which refers to employees' ability to generate, develop, and implement new ideas within their work processes. Innovativeness in public service organizations often emerges not through radical innovations, but through small, practical improvements that enhance efficiency or reduce operational bottlenecks. Whether through reorganizing workflow, proposing alternative solutions to recurring problems, or improving coordination among units, employee innovativeness plays a significant role in sustaining service quality. This variable is also theorized to mediate the relationship between psychological and behavioral factors, offering a compelling mechanism through which performance may be improved.

Although numerous studies have explored the relationships among leadership, self-efficacy, innovativeness, and performance, empirical findings remain varied. Some studies report significant impacts of transformational leadership on employee performance, while others particularly those conducted in bureaucratic environments find no direct influence. Likewise, while self-efficacy consistently shows strong effects on both innovativeness and

performance, the magnitude of its influence appears to depend on organizational characteristics. Further, empirical results on the mediating role of employee innovativeness remain mixed across prior research. These inconsistencies reveal an important research gap, especially within the context of Indonesian regional-owned enterprises (BUMD), which remain underexplored in empirical human resource research.

Perumda Tirtanadi KC Sunggal Medan represents a dynamic work environment with high operational demands and a relatively limited workforce. These conditions create a need for a deeper understanding of how leadership, psychological resources, and innovative behaviors interact to shape employee performance. Given the limited number of studies focusing specifically on BUMD settings and the unique structural characteristics of public water utilities, this research offers valuable novelty in terms of context, object, and tested relationships among variables.

Therefore, this study aims to analyze the influence of transformational leadership and self-efficacy on employee performance, with employee innovativeness as a mediating variable among employees of Perumda Tirtanadi KC Sunggal Medan. The findings are expected to contribute theoretically to the development of public sector human resource management literature and practically to provide insights that can guide organizational strategies in improving employee performance through appropriate empowerment and capability-building approaches.

LITERATURE REVIEW

Research on transformational leadership, self-efficacy, employee innovativeness, and employee performance has attracted significant scholarly attention across various organizational settings. However, empirical findings on these relationships remain diverse, particularly within public sector institutions characterized by rigid structures and standardized procedures. This section outlines prior studies relevant to each variable relationship.

Transformational Leadership and Employee Performance/Innovativeness

Studies investigating the influence of transformational leadership have reported mixed results across different contexts. Several researchers have found positive effects. Lan et al. (2020) reported that transformational leadership encourages innovative work behavior by fostering motivation, inspiration, and a supportive climate for new ideas. Leaders who articulate a compelling vision and stimulate intellectual growth tend to enhance employees' willingness to innovate.

Similarly, Saif (2020) found that transformational leadership positively affects employee performance by strengthening work motivation, clarifying objectives, and encouraging individuals to achieve higher standards. Transformational leaders inspire their followers to exceed expectations through intellectual stimulation and motivational support.

Conversely, some studies have shown that transformational leadership may not significantly influence performance or innovativeness in highly

procedural environments. Afifah (2023), in her study “The Role of Transformational Leadership on Innovative Work Behavior,” found no significant effect of transformational leadership on innovative behavior when employees’ work routines are highly repetitive and governed strictly by SOPs. In such contexts, employees have limited flexibility to express creativity regardless of managerial inspiration.

Suryanto (2025) similarly reported that transformational leadership does not significantly affect employee performance in public-sector organizations due to limited employee autonomy and rigid hierarchical structures. These findings suggest that the effectiveness of transformational leadership is contingent upon organizational characteristics and the extent of discretion afforded to employees.

Self-Efficacy and Employee Performance/Innovativeness

Unlike transformational leadership, empirical research on self-efficacy shows more consistent results. Dewa (2021), in his study at Perumda Air Minum Tirta Sanjiwani, found that self-efficacy significantly improves employee performance, especially in tasks requiring precision and resilience. Employees with high self-efficacy tend to remain confident, persistent, and better equipped to handle pressure.

A study conducted at PT Tirta Marwah Mandiri (2022) revealed that self-efficacy is the strongest predictor of employee performance compared to motivation and work environment. Employees with strong beliefs in their abilities are more capable of managing work strategies and making effective decisions.

From an innovation perspective, Izza (2024), in “The Mediation Role of Self-Efficacy on Innovative Work Behavior,” demonstrated that self-efficacy significantly influences innovative behavior. Employees with high self-efficacy are more likely to explore alternative strategies, introduce new ideas, and solve operational issues creatively. These findings align with Bandura’s theory that self-efficacy forms the psychological foundation for creativity and adaptive performance.

Overall, prior studies consistently emphasize the central role of self-efficacy in shaping both employee performance and innovative behavior.

Employee Innovativeness and Employee Performance

Employee innovativeness has also been widely studied as a determinant of performance. Saif (2020) found that innovative behavior contributes directly to improved work effectiveness by reducing operational bottlenecks, enhancing workflow, and increasing efficiency.

Ghiang Thi (2022) showed that innovative employees tend to complete tasks more accurately and efficiently, ultimately boosting organizational productivity. Innovation allows employees to adjust processes, resolve technical issues, and maintain service quality even under increasing work demands.

More recent research by Elvirani and Pusparini (2025) in the public service sector highlights that employee innovativeness significantly enhances performance, particularly in dynamic environments. Their findings indicate that

practical innovations such as process improvements or alternative work methods can help maintain service quality despite workload fluctuations.

Hypothesis Development

Based on previous empirical studies examining the relationships among transformational leadership, self-efficacy, employee innovativeness, and employee performance, the hypotheses in this research are developed as follows.

Prior work by Saif et al. (2024) indicates that transformational leadership can enhance innovative work behavior and employee performance through mechanisms such as motivation and knowledge sharing. However, studies by Afifah (2023) and Suryanto (2022) show that the effect of transformational leadership may become insignificant in highly bureaucratic and SOP-driven environments, where employees have limited autonomy to translate leadership inspiration into actual work behavior. These contrasting findings suggest that the impact of transformational leadership is contingent upon organizational context and job flexibility.

Furthermore, self-efficacy has consistently been shown to play a crucial role in improving both performance and innovative behavior. Studies by Dewa (2021) and Astuti (2024) demonstrate that employees with higher self-efficacy tend to be more resilient, confident, and effective in meeting work demands. Izza (2024) further highlights that self-efficacy significantly contributes to innovative work behavior, which in turn facilitates better work outcomes.

Meanwhile, employee innovativeness has also been widely recognized as a key driver of performance. Research by Saif (2020), Ghiang Thi (2022), and Elvirani & Pusparini (2025) confirms that innovative behavior whether in the form of new ideas or process improvements enhances efficiency, productivity, and overall work effectiveness.

Drawing from these empirical foundations, the hypotheses of this study are formulated as follows:

Research Hypotheses

H1: Transformational leadership has an effect on employee performance.

H2: Self-efficacy has an effect on employee performance.

H3: Transformational leadership has an effect on employee innovativeness.

H4: Self-efficacy has an effect on employee innovativeness.

H5: Employee innovativeness has an effect on employee performance.

H6: Employee innovativeness mediates the effect of transformational leadership on employee performance.

H7: Employee innovativeness mediates the effect of self-efficacy on employee performance.

METHODOLOGY

Research Design

This study employed a quantitative explanatory research design aimed at examining causal relationships among the variables under investigation. The analytical technique used was Partial Least Squares – Structural Equation Modeling (PLS-SEM), which is suitable for small sample sizes, complex models, and data that do not require normal distribution assumptions. Data was processed using SmartPLS 4.

Population and Sample

The population consisted of 50 employees of Perumda Tirtanadi KC Sunggal Medan. Due to the relatively small population size, this study used a census sampling (saturated sampling) technique, meaning that all members of the population were included as research respondents. Therefore, the total sample comprised 50 employees.

This approach is appropriate for public-sector institutions such as Perumda Tirtanadi because each employee contributes directly to operational and administrative processes, making full-population sampling ideal for generating an accurate and comprehensive representation.

Data Collection Procedures

Data were collected using a structured questionnaire consisting of closed-ended statements measured on a 5-point Likert scale, where:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Slightly Agree
- 4 = Agree
- 5 = Strongly Agree

The questionnaires were distributed directly to employees across both administrative and operational divisions. Respondents were given time to complete the survey independently to ensure accuracy and minimize response bias.

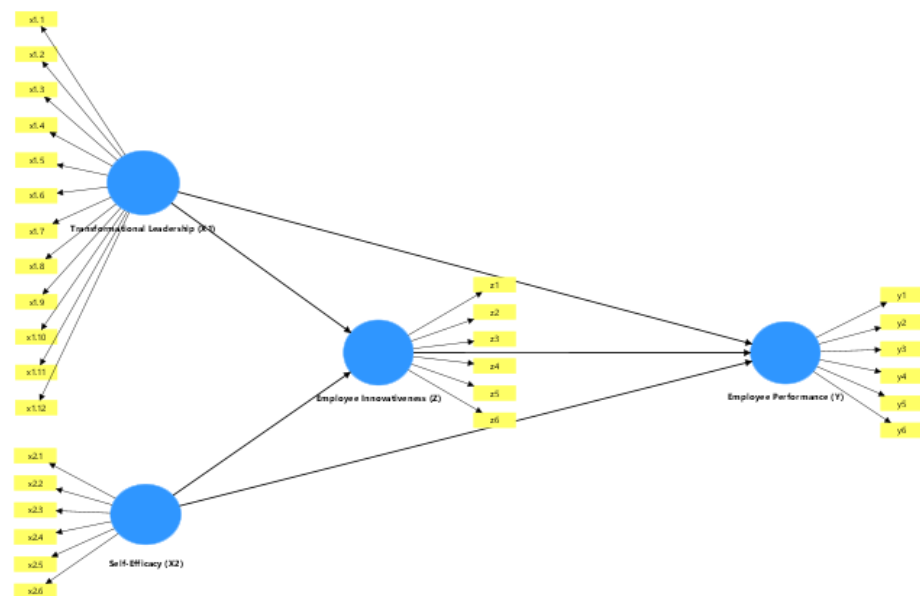
Variables and Operational Definitions

1. Transformational Leadership (X1)
Measured through four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.
2. Self-Efficacy (X2)
Refers to employees' belief in their ability to accomplish tasks, manage difficult situations, and cope with work demands.
3. Employee Innovativeness (Z)
Measured through indicators such as idea generation, creativity in problem solving, willingness to express ideas, collaborative discussion, and participation in implementing new ideas.
4. Employee Performance (Y)
Measured through indicators including task completion timeliness, accuracy of work results, compliance with SOPs, effectiveness in meeting work targets, and recognition from customers or related stakeholders.

All indicators were adapted from established theories and prior empirical studies and adjusted to the context of job characteristics at Perumda Tirtanadi KC Sunggal.

Research Model (Conceptual Framework)

The conceptual framework illustrates the direct and indirect relationships among transformational leadership (X1), self-efficacy (X2), employee innovativeness (Z), and employee performance (Y). The model proposes that transformational leadership and self-efficacy influence performance both directly and indirectly through employee innovativeness as a mediating variable.



Data were analyzed using PLS-SEM, which consists of two main stages:

1. Measurement Model (Outer Model) Assessment Including:
 - Convergent validity (factor loadings, Average Variance Extracted / AVE)
 - Discriminant validity (Fornell-Larcker Criterion, HTMT)
 - Reliability (Cronbach's Alpha, Composite Reliability)
2. Structural Model (Inner Model) Assessment Including:
 - Path coefficients
 - Coefficient of determination (R^2)
 - Significance testing (T-statistics and p-values) using bootstrapping
 - Analysis of direct effects, indirect effects, and mediating effects

PLS-SEM was chosen because it is suitable for small sample sizes, allows complex relationships involving mediation, and does not require assumptions of multivariate normality.

RESEARCH RESULTS

Measurement Model Assessment

1. Convergent Validity

Convergent validity was evaluated using the Average Variance Extracted (AVE). All constructs showed AVE values above the recommended

threshold of 0.50, indicating that each construct explains more than half of the variance of its indicators.

Variabel	Average variance extracted
<i>Transformational leadership (X1)</i>	0.606
<i>Self-Efficacy (X2)</i>	0.672
<i>Employee Performance (Y)</i>	0.605
<i>Employee Innovativeness (Z)</i>	0.608

Thus, convergent validity is achieved.

2. Discriminant Validity (HTMT & Fornell-Larcker)

Discriminant validity was assessed using both HTMT and Fornell-Larcker criteria. Although some HTMT values exceeded the threshold of 0.90, the Fornell-Larcker criterion demonstrated that the square root of AVE for each construct remained higher than its correlations with other constructs. This indicates acceptable discriminant validity, and the model can be continued to the structural stage.

3. Reliability

Cronbach's Alpha and Composite Reliability values for all constructs exceeded 0.70, indicating strong reliability.

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted
<i>Employee Innovativeness(Z)</i>	0.872	0.881	0.903	0.608
<i>Employee Performance(Y)</i>	0.869	0.871	0.902	0.605
<i>Self-Efficacy (X2)</i>	0.9	0.904	0.924	0.672
<i>Transformational leadership (X1)</i>	0.941	0.949	0.948	0.606

Thus, the measurement model meets all validity and reliability requirements.

Structural Model Assessment

1. Coefficient of Determination (R^2)

	R-square	R-square adjusted
<i>Employee Innovativeness(Z)</i>	0.654	0.639
<i>Employee Performance (Y)</i>	0.868	0.86

This shows that the model has substantial predictive accuracy.

2. Path Coefficients (Direct Effects)

Bootstrapping results indicate the following:

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Hipotesis
Transformational leadership (X1) -> Employee Performance (Y)	0.072	0.08	0.066	1.088	0.277	Rejected
Transformational leadership (X1) -> Employee Innovativeness(Z)	0.025	0.034	0.092	0.272	0.786	Rejected
Self-Efficacy(X2) -> Employee Innovativeness(Z)	0.798	0.796	0.068	11.747	0	Accepted
Self-Efficacy(X2) -> Employee Performance (Y)	0.702	0.717	0.126	5.606	0	Accepted
Employee Innovativeness(Z) -> Employee Performance (Y)	0.732	0.755	0.122	6.004	0	Accepted

3. Indirect Effects (Mediation)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Hipotesis
Transformational leadership (X1) -> Employee Performance (Y)	0.018	0.022	0.069	0.263	0.792	Not Mediated
Self-Efficacy(X2) -> Employee Performance (Y)	0.585	0.604	0.126	4.659	0	Mediated

Thus, only self-efficacy shows a mediation effect through employee innovativeness.

DISCUSSION

Transformational Leadership and Employee Performance

The results show that transformational leadership does not significantly influence employee performance within Perumda Tirtanadi KC Sunggal. This finding aligns with Afifah (2023), who reported that transformational leadership becomes less effective in rigid, bureaucracy-driven environments where employees work strictly based on Standard Operating Procedures (SOPs). In such systems, motivational leadership behaviors have limited room to shape performance because employees' tasks are already predetermined.

Similarly, Suryanto (2022) revealed that in Indonesian government-owned enterprises, job performance tends to be determined more by administrative rules, service procedures, and obligation to meet operational standards rather than by inspirational motivation from leaders. This supports the condition at Perumda Tirtanadi KC Sunggal, where employees must complete tasks regardless of leadership style due to fixed targets and strict daily performance requirements. Consequently, transformational leadership does not translate into improved performance.

Self-Efficacy and Employee Performance

The study finds that self-efficacy has a positive and significant impact on employee performance. This is consistent with the meta-analysis by Judge and Luthans (2007), which concluded that self-efficacy is a strong predictor of individual performance across various job contexts. High self-efficacy enhances resilience, problem-solving ability, and commitment to task completion.

Studies conducted in Indonesia also support this finding. Astuti (2024) reported that employees with higher self-efficacy demonstrate better performance under demanding conditions because they believe in their ability to accomplish tasks effectively. This mirrors the situation at Tirtanadi, where employees must meet strict deadlines, respond to service disruptions, and maintain operational continuity despite heavy workloads. Those with strong confidence tend to adapt better, manage tasks more efficiently, and produce higher-quality output.

Transformational Leadership and Employee Innovativeness

Transformational leadership is found to have no significant effect on employee innovativeness. This aligns with the findings of Afifah (2023), who discovered that transformational behavior does not stimulate innovation when job roles are highly routine and leave little room for creative decisions. Innovative work behavior thrives in environments that provide autonomy, flexibility, and open-ended tasks—conditions that are limited in the public water service sector.

Furthermore, Deng et al. (2023) explained that the influence of transformational leadership on innovation depends heavily on organizational climate, particularly the degree of empowerment and freedom employees are given. At Perumda Tirtanadi, SOP-driven procedures and fixed operational workflows restrict employees' ability to propose or implement innovative ideas, even when leaders encourage innovation during morning briefings.

Self-Efficacy and Employee Innovativeness

Self-efficacy demonstrates a positive and significant impact on employee innovativeness, aligned with findings by Izza (2024), who highlighted that employees with high self-efficacy are more likely to engage in idea generation, experimentation, and creative problem-solving. Such individuals tend to feel capable of handling risks and uncertainty, which are essential components of innovative work behavior.

Similarly, Kanapathipillai et al. (2021) found that self-efficacy drives employees to explore alternative solutions and proactively initiate improvements. This is consistent with the operational challenges at Tirtanadi

particularly during peak workloads or service disruptions where confident employees seek quicker, more efficient methods to meet service needs despite pressure.

Employee Innovativeness and Employee Performance

Employee innovativeness positively influences performance, consistent with findings by Ghiang Thi (2022), who stated that innovative employees enhance productivity and quality through process improvements and creative problem-solving. Innovations, even small ones, help eliminate bottlenecks and accelerate task completion.

Elvirani & Pusparini (2025) also found that in public-service organizations, innovative behaviors improve responsiveness, service speed, and error reduction. This finding mirrors the situation at Tirtanadi, where employees who think creatively for example, simplifying report processes or optimizing customer service flows tend to achieve better performance outcomes compared to those who rely solely on standard procedures.

Mediating Role of Employee Innovativeness

The mediating analysis shows two important insights:

Self-Efficacy → Employee Innovativeness → Performance (Significant Mediation)

This is consistent with Izza (2024), who found that innovation acts as a bridge between psychological strength and performance outcomes. Employees with strong self-belief tend to innovate, and these innovations further improve their efficiency and service quality.

Transformational Leadership → Employee Innovativeness → Performance (Not Significant)

This supports Afifah (2023), who stated that transformational leadership does not significantly trigger innovation when the organizational system is rigid. In such contexts, innovation cannot flourish regardless of leadership encouragement.

Thus, employee innovativeness successfully mediates the effect of self-efficacy on performance but fails to mediate the effect of transformational leadership due to the procedural and bureaucratic nature of the work environment.

CONCLUSION AND RECOMMENDATION

This study investigated the influence of transformational leadership and self-efficacy on employee performance, with employee innovativeness as a mediating variable, among employees of Perumda Tirtanadi KC Sunggal Medan. The findings reveal three major conclusions.

First, transformational leadership does not significantly affect either employee performance or employee innovativeness. This indicates that in an SOP-driven public-sector environment such as Perumda Tirtanadi, employees' work outcomes are shaped more by standardized procedures, fixed job structures, and operational obligations than by leaders' inspirational or

motivational behaviors. As a result, the role of transformational leadership becomes limited in influencing performance and innovation.

Second, self-efficacy demonstrates a strong and significant positive impact on both employee innovativeness and performance. Employees who believe in their capability to handle tasks, manage pressure, and overcome work challenges tend to be more proactive, efficient, and adaptive. High self-efficacy encourages individuals to develop creative solutions and maintain work quality even under demanding conditions, making it a key psychological determinant of performance in this organizational setting.

Third, employee innovativeness positively contributes to employee performance and serves as a mediating factor in the relationship between self-efficacy and performance. This shows that when employees are confident and capable, they are more willing to explore new methods, optimize processes, and generate improvements that enhance work outcomes. However, innovation does not mediate the relationship between transformational leadership and employee performance due to limited autonomy and procedural constraints within the organization.

Overall, the study concludes that internal psychological factors, particularly self-efficacy, play a more dominant role than leadership style in influencing performance within public-sector water utility operations. Employee innovativeness further strengthens this relationship by enabling performance improvements through creative and adaptive work behavior.

ADVANCED RESEARCH

Future research is encouraged to examine additional organizational and psychological factors that may influence employee performance in SOP-driven public-sector environments such as Perumda Tirtanadi. Further studies could explore the role of organizational culture, job autonomy, digital competence, and reward systems in shaping innovativeness and performance. It is also recommended to investigate whether alternative leadership styles—such as transactional, servant, or adaptive leadership—may have greater relevance in highly structured operational settings. Longitudinal and comparative research across different regional water utilities or other public institutions could provide deeper insights into contextual variations and the stability of these relationships over time. Expanding these research directions will help strengthen theoretical understanding and support the design of more effective performance-enhancement strategies in public-sector organizations.

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