

## THE EFFECT OF DIGITAL LEADERSHIP STYLE AND COLLABORATIVE CULTURE ON EMPLOYEE PERFORMANCE WITH TEAMWORK AS A INTERVENING VARIABLES AT PT PLN (PERSERO) UP2K SUMUT

Ahmed Maulana<sup>1)</sup>, Hernawaty<sup>2)</sup>

<sup>1,2</sup> Universitas Pembangunan Panca Budi, Medan, North Sumatera

Corresponding email: [ahmed.maulana123@gmail.com](mailto:ahmed.maulana123@gmail.com),

Author email : [hernawaty@dosen.pancabudi.ac.id](mailto:hernawaty@dosen.pancabudi.ac.id)

### ARTICLE INFO

#### Article History

Submission : 08/05/2026

Received : 07/05/2026

Revised : 15/05/2026

Accepted : 17/05/2026

#### Keywords

Collaborative Culture

Digital Leadership Style

Teamwork

Employee Performance

### ABSTRACT

The purpose of this research is to investigate how Collaborative Culture and Digital Leadership Style impact Employee Performance, with Teamwork acting as a mediating factor. A total of 78 employees participated in this study. Data was gathered via questionnaires and examined using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results of the analysis show that both Collaborative Culture and Digital Leadership Style positively and significantly influence Employee Performance. Additionally, Digital Leadership Style positively and significantly affects Teamwork. On the other hand, Teamwork does not directly affect Employee Performance significantly and does not mediate the effects of Collaborative Culture or Digital Leadership Style on Employee Performance. These results suggest that enhancing a collaborative culture and practicing effective digital leadership are essential for boosting employee performance.

### Introduction

The recent emergence of digital technology has led to significant shifts in work methods and leadership styles across various sectors, particularly in the electricity sector. The digital era is forcing organizations to undertake comprehensive changes in areas such as management, workplace culture, and human resource strategies. In this new era, leadership extends beyond managing teams; it also encompasses the ability to leverage digital tools to enhance all organizational functions (Northouse, 2019). Contemporary leaders must be adept at managing the challenges of digital transformation, motivating staff to embrace new technologies, and guiding their organizations toward increased efficiency and continuous innovation (Northouse, 2019). Specifically, in the case of state-owned enterprises like PT PLN (Persero), digital transformation is a crucial strategic requirement. As the nation's primary electricity provider, PLN is crucial for ensuring a stable electricity supply and driving national economic progress. In line with government directives on digital transformation for state-owned enterprises, PLN is dedicated to achieving its goal of becoming a Digital Powerhouse through technology-driven changes in its business practices, service framework, and workplace culture. The North Sumatra

Electricity Distribution Regulation Implementation Unit (UP2K), as a key work unit, is directly involved in implementing this policy, with a focus on electricity distribution regulation to maintain reliability and efficiency.

The success of digital transformation depends not only on technology adoption but also on the workforce's readiness to handle and adapt to these changes. Organizations like PLN continue to face obstacles in reshaping employee attitudes, behaviors, and skills to meet the expectations of the digital era. Therefore, implementing a digital leadership approach is crucial to driving successful organizational change. Leaders who embody digital leadership are able to foster an innovative work environment, encourage staff to embrace new technologies, and promote collaboration across different units and functions (Avolio et al., 2020). Digital leadership not only emphasizes the use of technology but also fosters a collaborative, inclusive, and participatory work environment (Avolio et al., 2020). In addition to strong leadership, a collaborative culture is crucial for influencing employee behavior within a digital organization. Such a culture emphasizes the values of teamwork, transparency, mutual respect, and proactive involvement of all organizational members. A collaborative work culture fosters an environment that encourages innovation and shared learning, enabling individuals to feel involved and contribute to organizational goals (Schein, 2021). Given the highly complex operational landscape of PLN UP2K North Sumatra, fostering a collaborative culture is crucial to facilitate intensive coordination and communication between different work units.

Furthermore, collaboration is a crucial factor in driving optimal employee performance. Collaborative efforts enable staff to enhance each other's skills, exchange information, and complete tasks more effectively and efficiently. Successful work teams are defined by transparent communication, shared accountability, and a shared commitment to organizational goals (Katzenbach & Smith, 2017). In PLN's operational environment, which requires rapid response to system failures and accurate grid management, strong teamwork plays a crucial role in achieving employee performance goals. Teamwork is considered a potential mediating factor that enhances the relationship between various digital leadership styles and collaborative culture, which impact employee performance.

Employee performance serves as an important measure of organizational achievement, as it indicates how effectively tasks are completed and the employee's actual contribution to achieving company goals. Performance can be influenced by several elements, such as leadership, motivation, workplace culture, and teamwork among individuals (Robbins & Judge, 2020). At PLN UP2K North Sumatra, employee performance signals the organization's ability to maintain a reliable electricity supply and provide quality public services. However, in practice, variations in performance levels among staff members persist, driven by inadequate team coordination, reluctance to embrace digital advancements, and leadership approaches that do not fully embrace organizational change.

Therefore, the success of PLN's digital transformation depends not only on the advanced technology adopted but also on the leadership's ability to foster collaborative values and build effective teamwork. The interaction between a digital leadership style, a collaborative culture, and strong teamwork is believed to significantly improve employee performance. Given this, With this understanding, this study is crucial to explore the impact of digital leadership styles and collaborative culture on employee performance,

with teamwork as a mediating factor at PT PLN (Persero) UP2K North Sumatra. The findings of this study aim to provide theoretical contributions to the advancement of leadership research in the digital era and provide practical insights for PLN management in developing strategies to enhance collaborative culture and improve teamwork effectiveness to achieve outstanding organizational performance.

**Table 1. Organizational Value Conditions and Their Impact on Employee Performance**  
**PT PLN (Persero) UP2K North Sumatra**

No	Organizational Value Indicators	Ideal Condition (%)	Actual Condition (%)	Gap (%)	Impact on Employee Performance
1	Compliance with AKHLAK values	100	72	28	Decreased work discipline and consistency
2	Integrity in carrying out duties	100	75	25	The quality of the work results is not optimal
3	Collaboration between employees/units	100	70	30	Slow and less synergistic work
4	Responsibility for work targets	100	78	22	Performance targets have not been achieved optimally
5	Adapting to digital change	100	68	32	Work effectiveness and efficiency decreases

Table 1 shows the differences between expectations and actual implementation of organizational values at PT PLN (Persero) UP2K North Sumatra. The most striking differences were found in the areas of adaptation to digital transformation (32%) and the level of collaboration between employees and departments (30%). This situation has led to a decline in effectiveness, efficiency, and cooperation in carrying out tasks. Furthermore, the implementation of the values of AKHLAK, integrity, and responsibility in achieving work goals has not reached the desired standard. This has resulted in poor work discipline, low work quality, and decreased employee performance. These results indicate that improving organizational values remains crucial to encourage better employee performance. After assessing the status of organizational values and employee performance, the researchers proceeded with a preliminary survey of 30 randomly selected employees. In the preliminary survey, each variable was evaluated using three statements, providing an initial overview of the research variables' status, which are detailed below:

**Identification of problems**

After conducting a background review, the researchers identified several problems:

1. The digital leadership approach at PT PLN (Persero) UP2K North Sumatra is not yet fully effective, resulting in inconsistent use of digital tools in decision-making and employee performance management.
2. There has been no implementation of a stable teamwork culture among employees, as evidenced by limited open dialogue and cooperation between various work groups.
3. The level of collaboration among team members varies, which is not enough to help in achieving goals and completing tasks effectively.
4. Employee performance has not reached optimal standards in terms of quality, quantity, and timeliness of task completion.
5. The relationship between digital leadership style and collaborative culture with employee performance, either directly or influenced by teamwork as an intermediary, has not been confirmed through empirical evidence.

### **Problem Formulation**

Based on the background that has been described, the issues for this research can be formulated as follows:

1. Does Digital Leadership Style have a positive and significant effect on Employee Performance at PT PLN (Persero) UP2K North Sumatra?
2. Does Collaborative Culture have a positive and significant effect on Employee Performance at PT PLN (Persero) UP2K North Sumatra?
3. Does Digital Leadership Style have a positive and significant effect on Teamwork at PT PLN (Persero) UP2K North Sumatra?
4. Does Collaborative Culture have a positive and significant effect on Teamwork at PT PLN (Persero) UP2K North Sumatra?
5. Does Teamwork have a positive and significant effect on Employee Performance at PT PLN (Persero) UP2K North Sumatra?
6. Does Digital Leadership Style have a positive and significant effect on Employee Performance through Teamwork at PT PLN (Persero) UP2K North Sumatra?
7. Does Collaborative Culture have a positive and significant effect on Employee Performance through Teamwork at PT PLN (Persero) UP2K North Sumatra?

### **Research purposes**

In relation to the problem statement, this research aims to:

1. To test and analyze the effect of Digital Leadership Style on Employee Performance at PT PLN (Persero) UP2K North Sumatra.
2. To test and analyze the effect of Collaborative Culture on Employee Performance at PT PLN (Persero) UP2K North Sumatra.
3. To test and analyze the effect of Digital Leadership Style on Teamwork at PT PLN (Persero) UP2K North Sumatra.
4. To test and analyze the effect of Collaborative Culture on Teamwork at PT PLN (Persero) UP2K North Sumatra.
5. To test and analyze the effect of Teamwork on Employee Performance at PT PLN (Persero) UP2K North Sumatra.
6. To test and analyze the positive and significant effect of Digital Leadership Style on Employee Performance through Teamwork at PT PLN (Persero) UP2K North Sumatra.

7. To test and analyze the positive and significant effect of Collaborative Culture on Employee Performance through Teamwork at PT PLN (Persero) UP2K North Sumatra.

### **Benefits of Research**

This study aims to provide theoretical and practical insights, which are explained as follows:

#### **1. Theoretical Advantages**

##### **a. Scientific Progress**

This study aims to contribute to and enhance existing knowledge in human resource management, focusing on digital leadership approaches, collaborative environments, teamwork, and employee productivity amidst digital transformation.

##### **b. Contribution to Academic Resources**

The results of this study are expected to be useful for future scholars in designing and improving conceptual frameworks regarding how digital leadership approaches and collaborative environments affect employee productivity, by including mediators such as teamwork.

##### **c. Strengthening Modern Management Theory**

This research also helps strengthen the application of leadership theory, organizational culture, and organizational behavior that are relevant to changes caused by digitalization and the need for collaboration in today's work environment.

#### **2. Practical Advantages**

##### **a. For PT PLN (Persero) UP2K North Sumatra**

The findings of this study can be implemented as an evaluation tool and strategic insight for management to improve the effectiveness of implementing digital leadership styles and to foster a collaborative culture in the workplace, ultimately creating strong, adaptive, and peak-performing teams.

##### **b. For managers and organizational leaders**

This research aims to increase understanding of the important role of digital leadership in inspiring employees, optimizing teamwork, and facilitating performance improvement through skilled teamwork management.

##### **c. For employees of PT PLN (Persero)**

The results of this study can provide guidance to employees about the importance of collaboration, transparent communication, and teamwork across units to help achieve organizational goals and improve individual performance.

##### **d. For academics and management professionals**

This research can be a resource for academics and management professionals in understanding how digital leadership collaboration and teamwork culture improve employee productivity, particularly within the framework of digital transformation in state-owned enterprises.

### **Literature Review**

#### **Employee Performance**

According to Ramadhan (2021), employee performance reflects the effectiveness and efficiency of employees in carrying out tasks and their contribution to achieving

organizational goals. Employee performance is the level of achievement of tasks, responsibilities, and targets set by the organization. According to Robbins & Judge (2020): employee performance is the measurable work results produced by individuals according to their responsibilities in the organization..

### **Indicators of Employee Performance**

According to Ramadhan (2021), indicators of Employee Performance are:

1. Quality of work, conformity of work results with established standards.
2. Quantity of work, amount of work completed in a certain period.
3. Discipline, compliance with organizational rules and procedures.
4. Initiative, ability to take proactive steps in completing tasks.
5. Cooperation, ability to work together with colleagues to achieve goals.

### **Factors Affecting Employee Performance**

According to Ramadhan (2021), factors affecting **employee performance** include several main aspects, namely:

1. Ability, includes employee competence, knowledge, and skills in carrying out tasks.
2. Motivation, internal or external drive that makes employees strive to achieve work targets.
3. Work discipline, level of employee compliance with organizational regulations and provisions.
4. Work environment, physical and non-physical workplace conditions that affect comfort and productivity.
5. Leadership, style and ability of leaders in directing, guiding, and motivating subordinates.
6. Compensation, form of appreciation given by the organization for employee contributions in their work.

### **Digital Leadership Style**

According to Putra & Sari, 2021, digital leadership style is the ability of a leader to utilize digital technology to facilitate communication, collaboration, innovation, and decision-making in the organization so as to encourage employee performance. According to Solis (2019), digital leadership includes the leader's ability to integrate technology, build an innovative culture, and lead digital transformation across the organization.

### **Indicators of Digital Leadership Style**

According to Putra & Sari (2021), indicators of Digital Leadership Style are:

1. Digital vision, leader's ability to set the direction of the organization's digital transformation.
2. Technology utilization, use of technology to support work processes.
3. Digital communication, leveraging digital platforms for effective communication.
4. Innovation and adaptation, encouraging employees to adapt to new technologies.
5. Data-driven decision-making, using digital data for decision-making.

### Collaborative Culture

According to Denison & Mishra (2016), collaborative culture is an important factor for creating team synergy, increasing motivation, and driving organizational innovation. According to Schein (2021), collaborative culture is defined as an organizational environment that emphasizes participation, cross-team cooperation, and joint decision-making.

### Indicators of Collaborative Culture

According to Schein (2022), indicators of Collaborative Culture are:

1. Information openness, employees are free to share knowledge and information.
2. Cross-divisional cooperation, coordination and collaboration between departments.
3. Mutual respect and trust, building healthy interpersonal relationships.
4. Active participation, encouraging employees to contribute to decision-making.
5. Shared learning, sharing experiences and best practices in the team.

### Teamwork

According to Robbins & Judge (2020): teamwork includes effective communication, collaboration, and conflict resolution to improve team performance.

According to Katzenbach & Smith (2017): teamwork is coordinative behavior among team members who support each other and are responsible for achieving common goals.

### Indicators of Teamwork

Based on Katzenbach & Smith, 2017:

1. Coordination, ability to organize tasks among team members.
2. Effective communication, exchanging information clearly with each other.
3. Mutual support, providing assistance and support among team members.
4. Conflict resolution, constructively addressing differences of opinion.
5. Commitment to goals, focus on achieving team results.

### Conceptual Framework

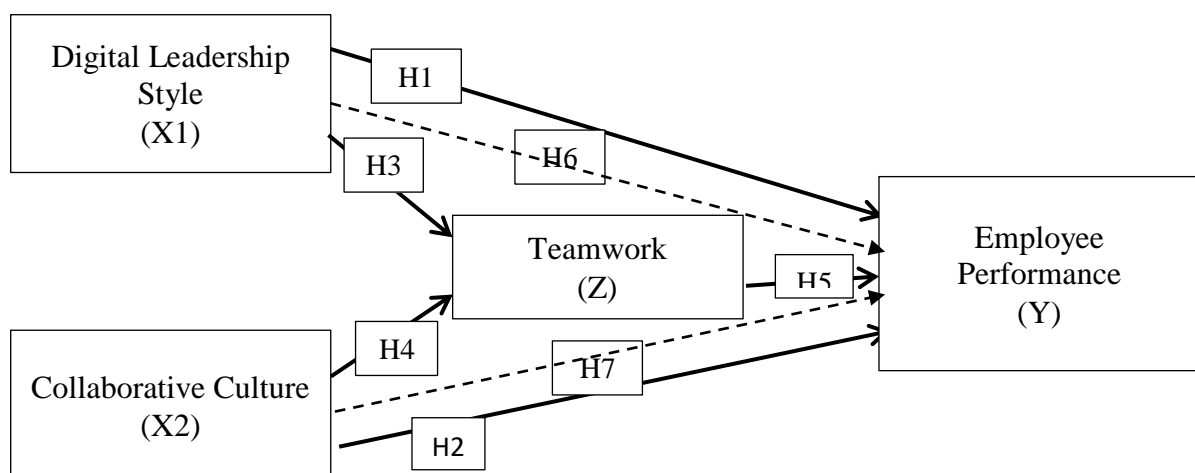


Figure I Conceptual Framework

### Research Hypotheses

1. Digital Leadership Style has a positive and significant effect on Employee Performance at PT PLN (Persero) UP2K North Sumatra.
2. Collaborative Culture has a positive and significant effect on Employee Performance at PT PLN (Persero) UP2K North Sumatra.
3. Digital Leadership Style has a positive and significant effect on Teamwork at PT PLN (Persero) UP2K North Sumatra.
4. Collaborative Culture has a positive and significant effect on Teamwork at PT PLN (Persero) UP2K North Sumatra.
5. Teamwork has a positive and significant effect on Employee Performance at PT PLN (Persero) UP2K North Sumatra.
6. Digital Leadership Style has a positive and significant effect on Employee Performance through Teamwork at PT PLN (Persero) UP2K North Sumatra.
7. Collaborative Culture has a positive and significant effect on Employee Performance through Teamwork at PT PLN (Persero) UP2K North Sumatra.

### Research Methodology

#### Research Type

According to Sugiyono (2019), quantitative research is research based on the philosophy of positivism, used to examine a specific population or sample, with data collection using research instruments, and data analysis is statistical to test predetermined hypotheses.

#### Research Time and Place

This research was conducted at PT PLN (Persero) Unit Pelaksana Pengatur Ketenagalistrikan (UP2K) North Sumatra, located at Jl. K.L. Yos Sudarso No. 284, Glugur Kota, Kecamatan Medan Barat, Kota Medan, North Sumatra. The research was conducted from November 2025 to December 2025.

#### Population and Sample

According to Sugiyono (2019), population is the generalization area consisting of objects or subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions are drawn. The total population in this study was 78 employees.

According to Sugiyono (2019), a sample is part of the number and characteristics possessed by that population. If the population is large and it is impossible for the researcher to study the entire population, then the researcher can use a sample taken from that population. In this study, the population is only 78 employees, so the entire population was used as the research sample. Thus, this study uses a saturated sampling technique. Therefore, the sample in this study is all 78 employees of PT PLN (Persero) UP2K North Sumatra, who are also the entire research population.

### Method of collecting data

Data collection is an important step in research because it aims to gather accurate and relevant information regarding the research issue (Sugiyono, 2019). In this study, the data collection method used was a questionnaire. The questionnaire was designed with a Likert scale, where participants were asked to indicate their level of agreement with each statement related to the research variables. The Likert scale includes five levels of assessment: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). The questionnaire was distributed directly to 78 employees of PT PLN (Persero) UP2K North Sumatra as research participants to collect primary data regarding their views on digital leadership styles, collaborative culture, teamwork, and employee performance.

### Primary Data

Primary data refers to information collected directly from original sources on-site, using research tools such as surveys, interviews, or direct observation (Riduwan, 2020). In this study, primary data was collected by sending questionnaires to 78 staff members of PT PLN (Persero) UP2K North Sumatra as participants. The data reflects employee views on digital leadership styles, team culture, collaboration, and job performance.

### Data Analysis Techniques

Data analysis in this study used the Partial Least Squares–Structural Equation Modeling (PLS-SEM) technique, supported by SmartPLS software version 3.0. PLS-SEM is a multivariate analysis method used to explore relationships between latent variables or complex constructs, with a focus on predictive objectives (Hair et al., 2021). This method is considered suitable for studies with a relatively large number of indicators, medium to small sample sizes, and when the data does not fully meet the assumption of a normal distribution. SmartPLS functions as a variance-based program used to estimate the measurement model (outer model) and the structural framework (inner model). This method integrates multiple regression analysis with factor analysis to clarify causal relationships between latent variables within the research framework (Ghozali & Latan, 2019).

### Data Analysis Stages Using SmartPLS

#### 1. Evaluation of Measurement Model (Outer Model)

The purpose of this phase is to check the validity and reliability of the indicators in representing the construct being assessed.

- a. Convergent validity is analyzed through factor loading values with a threshold of  $\geq 0.70$  and an Average Variance Extracted (AVE) value of  $\geq 0.50$ .
- b. Discriminant validity is assessed by looking at the cross-loading value and using the Fornell–Larcker criteria.
- c. Construct reliability is determined by the Composite Reliability and Cronbach's Alpha values, with a minimum requirement of  $\geq 0.70$  (Hair et al., 2021).

#### 2. Structural Model Evaluation (Deep Model)

This phase focuses on examining the relationships between latent variables within the research framework.

- The R-Square ( $R^2$ ) value helps identify how much the independent variable contributes to explaining the dependent variable.
- The Q-Square ( $Q^2$ ) value is used to evaluate the ability of the research model to predict results.
- The significance test for the path coefficient was conducted using the bootstrapping method to analyze the impact between variables, where a t-statistic value  $\geq 1.96$  or a p-value  $\leq 0.05$  indicates a significant effect.

## RESULTS AND DISCUSSION

### Outer Model Analysis

Measurement model evaluation (the outer model) is conducted to examine how latent variables relate to their specific indicators. This evaluation involves examining convergent validity, discriminant validity, and construct reliability.

### Convergent Validity

In a measurement model containing reflective indicators, convergent validity can be determined by a strong correlation between the indicator score and the score of the construct being evaluated. An indicator is considered to have high validity when its factor loading exceeds 0.70. However, during the scale development phase, factor loading values ranging from 0.50 to 0.60 were also considered acceptable. According to findings from the external loading test, several indicators showed loading values lower than 0.60 and were considered insignificant. Consequently, these indicators require additional assessment to improve the quality of the measurement model. The structural model used in this study is depicted in the figure below.

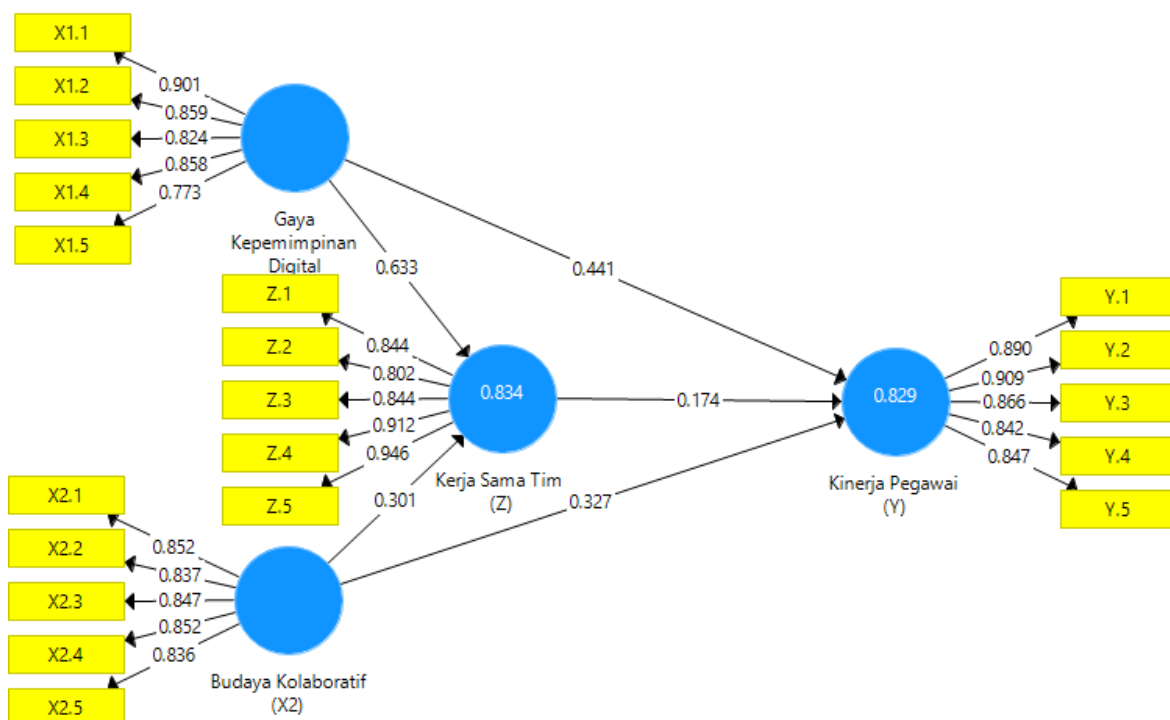


Figure 2. Outer Model

Source : Smart PLS 3.3.3

Based on the table shown above, the external loading values for each variable and indicator exceed 0.70. This indicates that all indicators in this study meet validity requirements because they have sufficient factor loading values. Consequently, the measurement model is considered appropriate, allowing the study to proceed to the next analysis phase. Furthermore, this research model is designed as a structural equation that includes two substructures to clarify the relationships between the variables studied.

substructure 1

$$Z = b1X1 + b2X2 + e1$$

$$Z = 0.633 + 0.301 + e1$$

For substructure 2

$$Y = b3X1 + b4X2 + b5Z + e2$$

$$Y = 0.441 + 0.327 + 0.174 + e2$$

**Table 1. Outer Loadings**

	Collaborative Culture (X2)	Digital Leadership Style_(X1)	Teamwork_(Z)	Employee Performance_(Y)
X1.1		0.901		
X1.2		0.859		
X1.3		0.824		
X1.4		0.858		
X1.5		0.773		
X2.1	0.852			
X2.2	0.837			
X2.3	0.847			
X2.4	0.852			
X2.5	0.836			
Y.1				0.890
Y.2				0.909
Y.3				0.866
Y.4				0.842
Y.5				0.847
Z.1			0.844	
Z.2			0.802	
Z.3			0.844	
Z.4			0.912	
Z.5			0.946	

Source : Smart PLS 3.3.3

According to Table 1, each indicator in the variables Digital Leadership Style (X1), Collaborative Culture (X2), Teamwork (Z), and Employee Performance (Y) shows an outer loading value exceeding 0.70. These results indicate that each indicator effectively and strongly represents its respective variable construct. The indicator with the highest

outer loading value is Z.5, which is 0.946 for the Teamwork variable. Conversely, the lowest value was recorded for indicator X1.5, which is 0.773 for the Digital Leadership Style variable. Therefore, it can be concluded that all indicators meet the validity criteria and are suitable for use in the next analysis phase.

### Discriminant Validity

The next phase in assessing the measurement model involves examining discriminant validity. This evaluation aims to confirm that each reflective indicator has a stronger correlation with the construct it is intended to measure than with other constructs, thus validating its effectiveness as a measure. The findings from the discriminant validity assessment, using cross-loading values, are shown in the table below.

**Table 2. Discriminant Validity**

	Collaborative Culture (X2)	Digital Leadership Style_(X1)	Teamwork _(Z)	Employee Performance_(Y)
X1.1	0.797	0.901	0.859	0.811
X1.2	0.747	0.859	0.766	0.811
X1.3	0.707	0.824	0.738	0.768
X1.4	0.794	0.858	0.765	0.747
X1.5	0.758	0.773	0.675	0.610
X2.1	0.852	0.716	0.684	0.734
X2.2	0.837	0.771	0.779	0.808
X2.3	0.847	0.793	0.802	0.756
X2.4	0.852	0.767	0.690	0.673
X2.5	0.836	0.748	0.709	0.714
Y.1	0.728	0.717	0.693	0.890
Y.2	0.774	0.790	0.804	0.909
Y.3	0.791	0.812	0.739	0.866
Y.4	0.701	0.771	0.699	0.842
Y.5	0.809	0.789	0.789	0.847
Z.1	0.780	0.759	0.844	0.658
Z.2	0.670	0.675	0.802	0.633
Z.3	0.706	0.761	0.844	0.763
Z.4	0.763	0.851	0.912	0.823
Z.5	0.862	0.873	0.946	0.832

Source : Smart PLS 3.3.3

According to Table 2, which outlines the findings of the discriminant validity test, each indicator exhibits a higher loading value on the construct it is intended to measure than the loading values associated with the other constructs. This indicates that each indicator can more effectively characterize its respective variable compared to the others, meeting the criteria for discriminant validity. It is noteworthy that the highest loading value was observed in indicator Z.5, which was 0.946 for the Teamwork variable,

while the other indicators, although having slightly lower values, still showed clear differences between the constructs. Consequently, all variables examined in this study can be clearly distinguished from each other and are considered valid.

### 3. Composite Reliability

The next testing stage involves assessing construct reliability by analyzing the composite reliability value for each indicator block that contributes to the overall construct. A construct is considered reliable when its composite reliability value exceeds 0.60. In addition, further reliability evaluation is supported by reviewing the Cronbach's Alpha value for each construct; a construct is said to be reliable if its Cronbach's Alpha value is greater than 0.70. The composite reliability value and Cronbach's Alpha for each research variable were obtained from data analysis conducted using SmartPLS software, and are presented in the following table.

**Table 3. Construct Reliability and Validity**

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Collaborative Culture (X2)	0.900	0.926	0.714
Digital Leadership Style_(X1)	0.899	0.925	0.713
Teamwork_(Z)	0.920	0.940	0.759
Employee Performance_(Y)	0.920	0.940	0.759

Source : Smart PLS 3.3.3

According to Table 3, which displays the results for Reliability and Construct Validity, all study variables achieved Cronbach's Alpha and Composite Reliability scores greater than 0.70, along with Average Variance Extracted (AVE) scores above 0.50. These results indicate that each construct meets the standards for strong reliability and has sufficient convergent validity. Specifically, the variables for Teamwork (Z) and Employee Performance (Y) demonstrated the highest reliability and AVE scores, at 0.940 and 0.759, respectively, indicating a very strong level of measurement consistency for these constructs.

### Internal Model Analysis

The internal model, or structural model, is examined to verify that it exhibits good accuracy and predictive ability. Several test indicators are used to assess the structural model, as listed below:

#### 1. Coefficient of Determination (R<sup>2</sup>)

Data processed using SmartPLS 3.0 software produces an R<sup>2</sup> score for each endogenous variable, as shown in the following table.

**Table 4. R Square Results**

	R Square	Adjusted R Square
Teamwork_(Z)	0.834	0.830
Employee Performance_(Y)	0.829	0.822

Source : Smart PLS 3.3.3

According to Table 4, which shows the R-square findings, the Teamwork (Z) variable achieved an R<sup>2</sup> score of 0.834 and an Adjusted R<sup>2</sup> of 0.830. This indicates that 83.4% of the variance in Teamwork can be attributed to the independent variables in the research framework. In addition, the Employee Performance (Y) variable recorded an R<sup>2</sup> of 0.829 and an Adjusted R<sup>2</sup> of 0.822, meaning that 82.9% of the change in Employee Performance is influenced by the independent variables in the model. The substantial R-square value indicates strong explanatory and predictive capabilities of the research model.

## 2. Hypothesis Testing

After assessing the structural model (internal model), the next task is to analyze the relationships between the latent constructs as outlined in the established hypotheses. Hypothesis testing in this study was conducted by examining the T-statistic and P-value obtained from the analysis results. A hypothesis is considered valid if the T-statistic exceeds 1.96 and the P-value is less than 0.05. The following table displays the path coefficient results, which illustrate the direct relationship between variables.

**Table 5. Path Coefficients (Direct Effect)**

	Original Sample (O)	T Statistics (  O/STDEV  )	P Values	Results
Collaborative Culture (X2) -> Teamwork (Z)	0.301	2,715	<b>0.003</b>	<b>Accepted</b>
Collaborative Culture (X2) -> Employee Performance (Y)	0.327	2,644	<b>0.004</b>	<b>Accepted</b>
Digital Leadership Style (X1) -> Teamwork (Z)	0.633	5,824	<b>0,000</b>	<b>Accepted</b>
Digital Leadership Style (X1) -> Employee Performance (Y)	0.441	2,947	<b>0.002</b>	<b>Accepted</b>
Teamwork (Z) -> Employee Performance (Y)	0.174	1,328	<b>0.092</b>	<b>Rejected</b>

Source : Smart PLS 3.3.3

1. The path coefficient of Collaborative Culture related to Teamwork is 0.301, accompanied by a T statistic of 2.715 and a p-value of 0.003, which indicates a positive and significant relationship. The hypothesis is supported, indicating that Collaborative Culture helps improve Teamwork.
2. Regarding Employee Performance, Collaborative Culture has a path coefficient of 0.327, a T statistic of 2.644, and a p-value of 0.004, indicating positive and significant results. The hypothesis is supported, indicating that Collaborative Culture improves Employee Performance.
3. The path coefficient of Digital Leadership Style related to Teamwork is 0.633, with a T statistic of 5.824 and a p-value of 0.000, indicating a positive and highly significant influence. The hypothesis is accepted, indicating that Digital Leadership Style significantly influences Teamwork.
4. For Employee Performance, Digital Leadership Style shows a coefficient of 0.441, along with a T statistic of 2.947 and a p-value of 0.002, indicating a positive and significant effect. The hypothesis is accepted, indicating that Digital Leadership Style improves Employee Performance.
5. The coefficient for the effect of Teamwork on Employee Performance is 0.174, with a T statistic of 1.328 and a p-value of 0.092, indicating no significant impact. The

hypothesis is rejected, indicating that Teamwork does not have a significant direct effect on Employee Performance in this analysis.

**Table 6. Path Coefficients (Indirect Effect)**

	Original Sample (O)	T Statistics ( O/STDEV  )	P Values	Results
Collaborative Culture (X2) -> Teamwork (Z) -> Employee Performance (Y)	0.052	1,191	<b>0.117</b>	<b>Rejected</b>
Digital Leadership Style (X1) -> Teamwork (Z) -> Employee Performance (Y)	0.110	1,246	<b>0.107</b>	<b>Rejected</b>

Source : Smart PLS 3.3.3

1. The effect of Collaborative Culture on Employee Performance through Teamwork has a coefficient of 0.052, a T statistic of 1.191, and a p-value of 0.117, indicating that the effect is not significant. The hypothesis is rejected, indicating that Teamwork fails to mediate the effect of Collaborative Culture on Employee Performance.
2. The impact of Digital Leadership Style on Employee Performance through Teamwork shows a coefficient of 0.110, a T statistic of 1.246, and a p-value of 0.107, also indicating no significant effect. The hypothesis is rejected, meaning that Teamwork does not mediate the effect of Digital Leadership Style on Employee Performance.

**Conclusion**

From the findings presented, the researchers drew the following conclusions:

1. Collaborative Culture has a positive and significant impact on Teamwork, indicating that it can improve Teamwork.
2. Collaborative Culture has a positive and significant impact on Employee Performance, thus directly improving Employee Performance.
3. Digital Leadership Style has a positive and significant impact on Teamwork, highlighting the important role of digital leadership in improving Teamwork.
4. Digital Leadership Style has a positive and significant impact on Employee Performance, indicating that this leadership style also directly improves employee performance.
5. Teamwork does not show a significant impact on Employee Performance, so the hypothesis regarding direct influence is rejected.
6. Teamwork does not mediate the influence of Collaborative Culture on Employee Performance, because its indirect influence is not significant.
7. Teamwork does not mediate the influence of Digital Leadership Style on Employee Performance, because its indirect influence is also not significant.

### References

- Avolio, B. J., Kahai, S. S., & Dodge, G. E. (2020). *E-leadership: Re-examining transformations in leadership source and transmission*. *The Leadership Quarterly*, 31(6), 101–118. <https://doi.org/10.1016/j.leaqua.2020.101418>
- Denison, D. R., & Mishra, A. K. (2016). *Toward a theory of organizational culture and effectiveness*. *Organization Science*, 6(2), 204–223. <https://doi.org/10.1287/orsc.6.2.204>
- E Erwansyah (2020), ANALISIS KOMPETENSI DAN KOMPENSASI TERHADAP KEPUASAN KERJA KARYAWAN PADA PERUSAHAAN CV. MULIA MANDIRI SUKSES , JUMANT
- Ghozali, I., & Latan, H. (2019). *Partial least squares: Konsep, metode, dan aplikasi menggunakan program SmartPLS 3.0* (Edisi 3). Semarang: Badan Penerbit Universitas Diponegoro.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Thousand Oaks, CA: SAGE Publications.
- Katzenbach, J. R., & Smith, D. K. (2017). *The wisdom of teams: Creating the high-performance organization*. Harvard Business Review Press.
- Kementerian Badan Usaha Milik Negara Republik Indonesia. (2022). *Peta jalan transformasi digital BUMN*. Jakarta: Kementerian BUMN.
- B Mesra, KF Ferine, M Nur (2024), [Analysis of Compensation, Work Discipline and Job Promotion on Employee Performance with Work Morale as an Intervening Variable](#), International Conference on Artificial Intelligence, Navigation, Engineering, and Aviation Technology
- Northouse, P. G. (2019). *Leadership: Theory and practice* (8th ed.). SAGE Publications.
- PT PLN (Persero). (2023). *Profil Unit Pelaksana Pengatur Ketenagalistrikan (UP2K Sumatera Utara*. Medan: PT PLN (Persero).
- PT PLN (Persero). (2023). *Transformasi menuju PLN Digital Powerhouse*. Jakarta: PT PLN (Persero).
- Putra, A. P., & Sari, D. M. (2021). *Digital leadership and employee performance in the era of organizational transformation*. *Journal of Management and Digital Innovation*, 5(2), 112–124.
- Ramadhan, R. (2021). *Pengaruh motivasi dan kompetensi terhadap Employee Performance di era digitalisasi*. *Jurnal Manajemen dan Bisnis Indonesia*, 7(3), 221–232.
- Riduwan. (2020). *Metode dan teknik menyusun proposal penelitian*. Bandung: Alfabeta.
- Robbins, S. P., & Judge, T. A. (2020). *Organizational behavior* (18th ed.). Pearson Education.
- Schein, E. H. (2021). *Organizational culture and leadership* (6th ed.). John Wiley & Sons.
- Solis, B. (2019). *Digital leadership: Building a culture of innovation in the connected economy*. Wiley.
- Sugiyono. (2019). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.