

HUMAN RESOURCE PRACTICES, ORGANIZATIONAL CULTURE, AND DIGITAL LEADERSHIP: DRIVERS OF EMPLOYEE PERFORMANCE IN A STATE-OWNED PLANTATION COMPANY

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Abstract

This study analyzes the influence of compensation, engagement, competence, and organizational culture on employee performance through the application of digitalization and leadership in PTPN IV Regional I. The research is motivated by the importance of digital transformation and strengthening human resources in increasing organizational effectiveness and work productivity of state-owned plantation companies. A quantitative approach was used by collecting data through questionnaires to 264 employees using the purposive random sampling technique. Data analysis was carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results of the study show that compensation, engagement, competence, and organizational culture have a positive and significant effect on the implementation of digitalization, leadership, and employee performance. In addition, the implementation of digitalization and leadership has also been proven to have a positive and significant effect on employee performance. The results of mediation testing showed that the implementation of digitalization and leadership was able to mediate the relationship between compensation, engagement, competence, and organizational culture on employee performance. These findings confirm that improving employee performance requires integrating human resource management, organizational culture, digital transformation, and adaptive leadership to continuously improve work effectiveness and company competitiveness.

Keywords: Compensation, Employee Performance, Leadership

1. Introduction

Digital transformation has become a natural strategic issue in the management of modern organizations, including in state-owned plantation sector companies. The development of information technology, changes in the business environment, and the demands for improving operational efficiency encourage organizations to make adjustments to digital-based work systems (Wibowo, 2026). Digitalization is no longer seen as just a technological innovation, but has become an organizational need to improve work effectiveness, productivity, service quality, and company competitiveness (Philip, 2021). Digital transformation also requires organizations to be able to build human resource readiness, adaptive work culture, and leadership that supports organizational change in a sustainable manner. Research shows that the success of digital transformation is not only influenced by technological readiness, but also by the quality of human resources and the effectiveness of organizational leadership in dealing with digital change (Shao et al., 2024). The main problem is the lack of optimal organizational readiness to support comprehensive and sustainable digital transformation.

As one of the state-owned plantation companies, PTPN IV Regional I has a strategic role in increasing the productivity and effectiveness of the company's operations amid the demands of business transformation and organizational digitalization. Companies are required to be able to create a modern, responsive, and technology-based work system to improve the quality of service and competitiveness of the company. However, the implementation of digital transformation in organizations often faces various internal obstacles, such as low readiness of employees' digital competencies, weak employee involvement in supporting organizational change, and work culture that is not fully adaptive to technological developments (Trenerry et al., 2021). In addition, leadership that is not fully able to manage digital change is also a factor that hinders the effectiveness of organizational transformation (Matsunaga, 2021). The research problem lies in how internal organizational factors affect the success of digitalization and the performance of company employees.

Employee performance is one of the important indicators in determining the success of the organization in facing changes in the business environment and the development of digital technology. Organizations that are able to integrate digital transformation with human resource management effectively tend to have higher productivity and quality of work (Suparmi & Suprapti, 2026). However, the improvement of employee performance is not only determined by technical ability, but also influenced by compensation factors, employee engagement, competence, organizational culture, and leadership applied by the company (Shafariah et al., 2024). Previous research has also shown that digital leadership transformation has a significant influence on increasing employee engagement and employee performance in modern organizations (Orlibernawati et al., 2026). The fundamental problem that occurs is the lack of integration of human resources and digital transformation factors in improving employee performance optimally.

Compensation is one of the important factors in increasing employee motivation, loyalty, and readiness in the face of organizational change. A fair compensation system is able to increase job satisfaction and employee commitment to the company, thus having an impact on increasing work productivity. In addition, employee engagement is also a strategic factor in modern organizations because employees' emotional attachment to the organization can increase individual participation, dedication, and readiness to support organizational transformation (Fauzya & Chaniago, 2022). Employees who have high engagement tend to be more open to innovation, more adaptive to new technologies, and better able to support the implementation of digitalization in the organization. On the other hand, digital competence is also a major need in the era of technological transformation because organizations need human resources who are able to master information technology and adapt to digital-based work systems. This condition shows that there are problems in supporting the company's digital transformation.

Organizational culture also plays an important role in supporting the effectiveness of digital transformation and improving employee performance. An organizational culture that is innovative, collaborative, and adaptive to change will facilitate the implementation of digital work systems in the company. On the other hand, an organizational culture that is bureaucratic and less open to innovation can hinder the organizational transformation process and reduce the effectiveness of the company's work (J. Ferreira et al., 2022). In addition, leadership in the digital era is required not only to be able to manage the organization administratively, but also to be able to be an agent of change that is innovative, visionary, and adaptive to technological developments (Cortellazzo et al., 2019). Recent research shows that digital leadership has a positive influence on employee

performance because it can increase communication effectiveness, work motivation, and organizational ability to deal with technological changes (Nugroho et al., 2024). The problem that arises is that the organizational culture and leadership are not optimal in supporting digital transformation and improving employee performance.

The urgency of this research is becoming increasingly important because state-owned plantation companies are currently facing increasingly complex business change pressures, both in terms of operational efficiency, company competitiveness, and accelerating organizational digital transformation. Organizations are required to be able to build a modern, productive, and adaptive work system through strengthening the quality of human resources, organizational culture, and leadership that supports digital change. However, research that integrates compensation, engagement, competence, organizational culture, the application of digitalization, and leadership to employee performance in the plantation sector is still relatively limited. Therefore, this research is important to produce a digital transformation-based human resource management model that is able to improve organizational effectiveness and employee performance in a sustainable manner at PTPN IV Regional I.

2. Theoretical Background

2.1 Compensation and Digitalization Implementation

Compensation is a reward for services provided by the company to employees for contributions made in the organization, both financial and non-financial (Pebri, 2020). Fair compensation can increase employee work motivation, loyalty, and readiness to face organizational changes, including digital transformation (Tantriana et al., 2026). In the era of digitalization, companies need human resources who are able to adapt to the use of new technology in the work process (Novirsari et al., 2022).

According to (Astika et al., 2022), compensation is all income in the form of money or goods received by employees in exchange for services rendered to the company. In addition, the implementation of a technology-based reward and incentive system can increase organizational readiness to support digital transformation. Research (Hasrul Azwar Hasibuan et al., 2022), it shows that companies that implement digital technology tend to strengthen their work incentive and reward systems to improve organizational effectiveness. Thus, good compensation is believed to be able to encourage the successful implementation of digitalization in organizations because it is able to increase motivation, readiness for change, and technological adaptability in employees.

H1: Compensation has a positive and significant effect on the implementation of digitalization.

2.2 Engagement and Implementation of Digitalization

Employee engagement is an employee's emotional attachment and commitment to the organization and their work which is reflected through work morale, loyalty, and active involvement in organizational activities (Tambun et al., 2026). Employees who have high engagement tend to be more enthusiastic, dedicated, and active in supporting organizational change, including the implementation of digital technology (Nasib et al., 2023). In the era of digital transformation, employee engagement is an important factor because employee involvement is able to increase the organization's readiness to adopt new technologies and digital-based work systems (Winasis et al., 2021).

According to (Napitupulu et al., 2026) Explains that engagement is characterized by vigor, dedication, and absorption which shows the individual's full involvement in his or

her work. Engaged employees will more easily accept innovations and changes in technology-based work systems. Thus, the higher employee engagement, the greater the support for the implementation of digitalization in the company.

H2: Engagement has a positive and significant effect on the implementation of digitalization.

2.3 Competencies and Implementation of Digitalization

Competence is an individual's ability that includes knowledge, skills, attitudes, and behaviors in carrying out work effectively. In the era of digital transformation, digital competence is an important factor in supporting the successful application of technology in organizations (Sousa & Rocha, 2018). Digital competencies include the ability to use information technology, mastery of digital systems, digital communication skills, and individual readiness to adapt to changes in work technology (Dijk, 2020).

According to (Bhastary et al., 2024), competence is an individual's strategic ability that allows employees to carry out their work effectively in a digital-based work environment. Technology competence and digital adaptability allow employees to use information systems optimally so that the organization's digitization process can run more effectively and efficiently (Kerli et al., 2026). Research by (Syaifuddin, Lie, et al., 2024b) shows that digital competence has a positive and significant effect on the effectiveness of implementing organizational digitalization and improving employee performance. Employees who have high competence tend to be more receptive to changes in the digital work system and are able to utilize technology to increase work productivity (Hasibuan et al., 2026). Therefore, high competence will make it easier for organizations to implement work digitalization (Simanjuntak et al., 2026).

H3: Competency has a positive and significant effect on the implementation of digitalization.

2.4 Organizational Culture towards the Implementation of Digitalization

Organizational culture is the values, norms, and habits that develop in the organization and become a guideline for the behavior of the organization's members (Robbins & Judge, 2022). Organizational culture reflects how an organization thinks, acts, and adapts to changes in the business environment so that it can affect the effectiveness of work and employee behavior in the organization. An organizational culture that is innovative and adaptive to change will facilitate the implementation of digital technology in the company (Denison et al., 2020).

Digitalization requires a work culture that is open to innovation, collaboration, and learning new technologies (Syaifuddin, Rezeki, et al., 2024). Organizations that have a work culture that is open to innovation tend to be more receptive to digital transformation because of support for creativity, collaboration, and learning of new technologies (Nambisan et al., 2019). In addition, an organizational culture that supports change can also increase employees' readiness to use digital systems and information technology in daily work activities (Syaifuddin et al., 2022). Thus, a strong, innovative, and adaptive organizational culture is an important factor in supporting the implementation of corporate digitalization (Y. Lubis et al., 2024).

H4: Organizational culture has a positive and significant effect on the implementation of digitalization.

2.5 Compensation and Leadership

Good compensation reflects the organization's attention to employee welfare and is a form of appreciation for the contribution that employees make to the company (Dessler, 2019). A transparent and fair compensation system can increase employee job satisfaction, loyalty, and trust in the organization's leaders (Nasib et al., 2024). An effective compensation system has a positive relationship with employee trust in leadership and increased leadership effectiveness in the organization (Wiharsianti & Nisa, 2024).

Leaders who are able to manage compensation effectively will have greater support from employees in achieving the company's goals (Sari et al., 2023). Human resource management, including the work reward system, is an important part of improving organizational and leadership effectiveness (Armstrong & Taylor, 2014). In addition, the research (F. R. A. Lubis et al., 2023) that compensation has a positive and significant effect on the effectiveness of leadership and employee work motivation because a good reward system is able to improve the harmonious relationship between leaders and subordinates. Appropriate compensation can also increase organizational commitment and employee support for the company's leadership policies (Syaifuddin, Lie, et al., 2024a). Thus, compensation has an influence on the effectiveness of organizational leadership (Ballian, 2020).

H5: Compensation has a positive and significant effect on leadership.

2.6 Engagement and Leadership

Employee engagement is a psychological condition that shows an employee's emotional attachment, enthusiasm, and commitment to the job and the organization in which they work (Bakker et al., 2011). Engagement is reflected through the work ethic, dedication, and active involvement of individuals in carrying out organizational tasks (Susanto et al., 2025). Employees who have high engagement show loyalty, work motivation, and a willingness to make the best contribution to the organization (Faris et al., 2024). In the context of modern organizations, engagement is an important factor because it is able to improve working relationships, productivity, and organizational effectiveness (Saks, 2021).

The relationship between employee engagement and leadership shows that employee work attachment can strengthen the effectiveness of leadership in organizations (Syaifuddin et al., 2023). Employees who have high engagement tend to be more loyal, actively participate, and have greater trust in leaders so that they are able to create harmonious and productive working relationships (Baquero, 2023). Leaders who are able to build communication, provide support, and create a positive work environment will encourage increased emotional engagement of employees with the organization (Sofiyan et al., 2026). Research conducted (Chaniago, 2023) that transformational leadership and empowering leadership have a positive and significant influence on employee engagement because inspirational leaders are able to increase employee motivation, dedication, and active participation in the organization. Thus, the higher employee engagement, the stronger the effectiveness of leadership in supporting the achievement of organizational goals (Sipayung et al., 2023).

H6: Engagement has a positive and significant effect on leadership.

2.7 Competence and Leadership

Competence is an individual's ability that includes aspects of knowledge, skills, behavior, and adaptability that are necessary to carry out leadership functions effectively (Shet et al., 2017). Competence is not only related to technical abilities, but also includes knowledge, skills, attitudes, interpersonal abilities, and the ability to make appropriate decisions in the organization (Dörr et al., 2021). Leaders who have high competence tend to be better able to adapt to changes in the work environment, resolve organizational conflicts, and create effective communication with subordinates (Hou et al., 2022). In addition, good competence also helps leaders in increasing work motivation and building the trust of organizational members so as to create a productive and harmonious work environment (Nasution et al., 2023).

In the era of digital transformation, leadership competencies are becoming increasingly important because organizations need leaders who are adaptive, innovative, and able to deal with dynamic changes (Ompusunggu, 2022). In addition, the competencies possessed by leaders also affect the ability to build motivation and commitment of organizational members so as to create a harmonious and productive work environment (Munsamy et al., 2023). Competence is also an important basis in building leadership effectiveness because leaders who have high competence tend to be able to improve team performance and strengthen organizational competitiveness (Azhar & Ayobami, 2026). Thus, the higher the competence that an individual has, the better their leadership ability in managing the organization effectively, adaptively, and oriented towards achieving organizational goals.

H7: Competence has a positive and significant effect on leadership.

2.8 Organizational Culture and Leadership

A strong organizational culture can shape leadership patterns in the organization because organizational values such as discipline, innovation, communication, and cooperation are able to strengthen the effectiveness of leaders in directing subordinates and achieving organizational goals optimally (Khalid et al., 2020). Organizational culture is a system of shared values, norms, and beliefs that guide the behavior of organizational members in carrying out work activities and building effective organizational relationships (Ginanjar, 2026). Leaders who are in a positive organizational culture tend to find it easier to build coordination, increase work motivation, and create a harmonious and productive work environment (Ndruru et al., 2025). Therefore, organizational culture is one of the important factors that support the effectiveness of leadership in organizations.

An organizational culture that is adaptive to change also helps leaders in executing organizational transformation and facing the challenges of a dynamic business environment (Rinaldo et al., 2025). In addition, an organizational culture that supports innovation and collaboration will strengthen leaders' ability to build an agile, responsive, and competitive organization in the era of digital transformation (Yonata et al., 2025). Thus, organizational culture affects leadership because a strong and adaptive organizational culture is able to support the effectiveness of leaders in managing the organization in a more innovative, flexible, and oriented way to achieve organizational goals.

H8: Organizational culture has a positive and significant effect on leadership.

2.9 Application of Digitalization and Employee Performance

The application of digitalization is the process of using digital technology in organizational activities to increase effectiveness, efficiency, speed, and quality of work. Digitalization in companies can be in the form of the use of management information systems, cloud-based applications, Human Resource Information System (HRIS), Artificial Intelligence (AI), big data, and digital-based work communication (Verhoef et al., 2021). The implementation of digitalization is closely related to improving employee performance. Digitalization can speed up workflows, improve operational efficiency, reduce manual errors, and support better work collaboration. Digital systems also help organizations obtain data in real-time so that the decision-making process becomes faster and more precise (Vial, 2019). In the modern work environment, the implementation of digitalization encourages the creation of a more innovative, flexible, and productive work culture. Employees who are able to adapt to digital technology tend to have higher productivity compared to employees who have not mastered technology. In addition, the application of digital technology also improves the organization's ability to create a more transparent and integrated work system (Warner & Wäger, 2019).

Several previous studies have shown that digitalization has a positive and significant effect on employee performance. The use of digital technology in the work system has been proven to increase work effectiveness, service quality, and overall organizational productivity (Sia et al., 2021). Digital transformation has an impact on improving the quality of human resources through the development of digital competencies and organizational innovation (Subekti et al., 2024). Thus, the implementation of digitalization is an important strategy for companies in improving employee performance and organizational competitiveness, including plantation companies such as PTPN IV Regional I that are facing business and technology transformation. The success of digitalization depends not only on the technology used, but also on the readiness of human resources, organizational culture, and leadership that supports digital change in a sustainable manner (Naim & Lenka, 2017).

H9: The implementation of digitalization (Z1) has a positive and significant effect on employee performance (Y).

2.10 Leadership and Employee Performance

Leadership is a person's ability to influence, direct, and motivate individuals and groups to achieve organizational goals (Ramadhani, 2021). In a company, leaders have an important role in determining the success of the organization through effective human resource management. Good leadership is able to create a conducive work environment, increase work motivation, and encourage employees to work optimally (Dewantoro, 2023). Transformational leaders focus not only on achieving organizational goals, but also on developing subordinates' abilities and potential.

In the era of digital transformation, leadership is also required to be able to adapt to technological developments and changes in the business environment (Verhoef et al., 2021). Modern leaders must have the ability to manage change, build digital communication, and drive organizational innovation. Technology-adaptive leadership can help companies improve work effectiveness, accelerate decision-making, and improve collaboration between employees (Fahmi, 2021). In addition, leadership can also affect organizational culture and employee engagement, which ultimately increases employee productivity in a sustainable manner.

Thus, leadership is one of the important factors in improving employee performance. Companies that have effective, innovative, and motivated leaders will find it easier to achieve organizational goals and increase the company's competitiveness, including large companies such as PTPN IV Regional I that are facing business changes and digital transformation.

H10: Leadership has a positive and significant effect on employee performance.

2.11 Compensation and Employee Performance

Compensation is an organizational strategic instrument that not only serves as a reward for employee contributions, but also becomes a symbol of the company's appreciation, recognition, and fairness to its human resources. In modern organizations, fair and competitive compensation is a fundamental factor in building employee motivation, loyalty, and work productivity. According to Masram et al., (2022), an effective compensation system can significantly improve morale, job satisfaction, and employee performance because employees feel appreciated for their contributions to the organization. In addition, good compensation also reflects the company's seriousness in creating healthy and professional working relationships so that it can increase employee commitment to achieving organizational goals. From an equity theory perspective, employees will show a higher level of performance when they feel they are rewarded in a way that is balanced with the effort and responsibilities given in the job.

In the era of global competition and digital transformation, organizations are required to be able to create a reward system that not only retains quality employees, but also encourages continuous improvement in work effectiveness. Research Meidian et al., (2023) shows that compensation has a positive and significant influence on employee performance because it can increase work discipline, loyalty, and employee productivity in the organization. Employees who earn the award deservedly tend to have a higher sense of responsibility, work more optimally, and demonstrate a strong dedication to the company. Conversely, an unfair compensation system can lower work motivation, increase turnover intention, and undermine the overall effectiveness of the organization. Thus, compensation is an important factor that determines the success of an organization in improving employee performance and maintaining the company's competitiveness in a sustainable manner.

H11: Compensation has a positive and significant effect on employee performance.

2.12 Engagement and Employee Performance

In modern organizations, engagement is no longer seen as just employee loyalty, but becomes the main energy that encourages individuals to work optimally, innovatively, and responsibly. According to Arifin (2024), employee engagement has a significant effect on improving employee performance because employees who have high emotional attachment tend to be more productive, proactive, and have a strong commitment to achieving organizational goals. The concept of engagement consisting of vigor, dedication, and absorption shows that engaged employees will work with enthusiasm, focus, and seriousness in completing organizational tasks. Therefore, employee engagement is one of the company's strategic assets in creating superior and highly competitive human resources.

The relationship between employee engagement and employee performance shows that high work engagement can improve work effectiveness, service quality, and organizational productivity in a sustainable manner. Research Awalia & Yanuar (2024)

Explains that employee engagement is able to strengthen organizational citizenship behavior so that employees are more active in making positive contributions to the organization outside of their formal responsibilities. Engaged employees tend to have higher intrinsic motivation, are more adaptable to change, and are able to build more effective work collaboration. On the other hand, low engagement can lead to decreased work morale, low loyalty, and weak employee productivity in the organization. Thus, the higher employee engagement that employees have, the greater their contribution to improving overall organizational performance.

H12: Engagement has a positive and significant effect on employee performance.

2.13 Competence to Employee Performance

Competence is the main foundation in building the quality of human resources that are able to face the challenges of modern organizations and changes in the dynamic business environment (José & Rocha, 2018). Competence is not only related to technical ability, but also includes the knowledge, skills, attitudes, adaptability, and capacity of individuals to complete work effectively and professionally. Competence has an important influence on employee performance because individuals who have high competence tend to be more able to adapt to change, utilize technology optimally, and complete work with better quality (Septiadi & Ramdani, 2024). In the era of digital transformation, competence is an organization's strategic asset because companies need human resources who are not only technically smart, but also innovative, creative, and responsive to technological developments and global market demands.

Competence employees tend to have better problem-solving skills, are able to work under pressure, and are more quickly adapting to changes in the work system in the organization. Recent research shows that competence development is able to significantly improve work effectiveness, service quality, and organizational productivity because competencies help individuals work more purposefully and professionally (HA, 2023). On the other hand, low competence can lead to a decrease in work quality, weak innovation, and low organizational ability to deal with business and technological changes. Thus, competence is an important factor that determines the success of an organization in improving employee performance.

H13: Competence has a positive and significant effect on employee performance.

2.14 Organizational Culture and Employee Performance

Organizational culture is the soul and identity of the organization that shapes the way all members of the organization think, act, and interact in achieving the company's goals. According to Smollan & Mooney (2024), a positive and adaptive organizational culture has a significant influence on employee performance because it is able to create a harmonious, innovative, and productive work environment. Organizations that have a strong work culture are able to build employee loyalty, increase teamwork, and strengthen organizational commitment in dealing with increasingly complex business environment changes. Therefore, organizational culture is a strategic factor that determines the success of an organization in building superior and competitive human resources.

An innovative and collaborative organizational culture is able to increase work motivation, discipline, and the quality of relationships between employees so that it has a direct impact on improving employee performance. Research Caleb (2023) that organizational culture has a positive and significant influence on employee performance because a strong work culture is able to increase work morale, productivity, and

organizational effectiveness in a sustainable manner. In addition, an organizational culture that supports learning and change also helps organizations be more adaptive to digital transformation and technological developments. Thus, organizational culture is an important factor that is able to strengthen employee performance and increase the company's competitiveness in the face of modern business dynamics.

H14: Organizational culture has a positive and significant effect on employee performance.

H15: The application of digitalization mediates the effect of compensation on employee performance.

H16: The application of digitalization mediates the influence of engagement on employee performance.

H17: The application of digitalization mediates the influence of competencies on employee performance.

H18: The application of digitalization mediates the influence of organizational culture on employee performance.

H19: Leadership mediates the effect of compensation on employee performance.

H20: Leadership mediates the influence of engagement on employee performance.

H21: Leadership mediates the influence of competence on employee performance.

H22: Leadership mediates the influence of organizational culture on employee performance.

3. Methods

This study uses the Structural Equation Modeling (SEM) approach with Partial Least Squares (SEM-PLS) in analyzing the influence of compensation, engagement, competence and organizational culture on employee performance through the implementation of digitalization and leadership in PTPN IV Regional 1. The population of this study is employees of PT Perkebunan Nusantara IV Regional I which is part of PalmCo, a subholding of PT Perkebunan Nusantara III (Persero), which manages various business units in eight provinces with a total of around 62,700 employees. The sampling technique used purposive random sampling, where 264 employees were assigned as samples from this study.

The data in this study was obtained from primary sources through the distribution of questionnaires to respondents who had been determined as research samples. The questionnaire is compiled based on indicators that represent each of the variables studied, so that it is able to clearly describe the relationship between variables. This method is used to obtain information directly from employees who are respondents, so that the data collected is factual, relevant, and trustworthy. This approach also aims to increase the validity of the research results, as the data obtained reflects the perception and real experience of employees towards the context of the organization being studied.

4. Results and Discussion

4.1 Results

Table 1. Outer Loading Results

Indicator	Compensation (X1)	Engagement (X2)	Competence (X3)	Organizational Culture (X4)	Employee Performance (Y)	Digitalization Implementation (Z1)	Leadership (Z2)
X1.1	0.979						
X1.2	0.978						
X1.3	0.978						

Indicator	Compensation (X1)	Engagement (X2)	Competence (X3)	Organizational Culture (X4)	Employee Performance (Y)	Digitalization Implementation (Z1)	Leadership (Z2)
X1.4	0.981						
X2.1		0.973					
X2.2		0.971					
X2.3		0.974					
X2.4		0.975					
X3.1			0.977				
X3.2			0.979				
X3.3			0.980				
X3.4			0.977				
X4.1				0.965			
X4.2				0.964			
X4.3				0.960			
X4.4				0.965			
Y.1					0.949		
Y.2					0.948		
Y.3					0.960		
Y.4					0.948		
Z1.1						0.952	
Z1.2						0.943	
Z1.3						0.932	
Z1.4						0.941	
Z2.1							0.933
Z2.2							0.944
Z2.3							0.933
Z2.4							0.925

Source: Data processed by researchers (SmartPLS 4.0), 2026

Table 1 presents the outer loading results for all indicators. Based on the Outer Loadings Test, all variables Compensation (X1), Engagement (X2), Competence (X3), Organizational Culture (X4), Employee Performance (Y), Digitalization Implementation (Z1), and Leadership (Z2) have loading factor values greater than 0.70. Thus, the indicators of each variable used in this study have met the convergent validity criteria (Hair et al., 2019).

Table 2. Average Variance Extracted (AVE)

Variable	Average Variance Extracted (AVE)
Compensation (X1)	0.959
Engagement (X2)	0.947
Competence (X3)	0.957
Organizational Culture (X4)	0.929
Employee Performance (Y)	0.905
Digitalization Implementation (Z1)	0.888
Leadership (Z2)	0.871

Source: Data processed by researchers (SmartPLS 4.0), 2026

Table 2 presents the Average Variance Extracted (AVE) values for all variables. Based on the table above, it can be seen that the AVE values from all variables are greater than 0.50, so all variables in this study are declared valid or have met the convergent validity criteria (Fornell & Larcker, 1981).

Table 3. Reliability Test Results

Variable	Cronbach's Alpha	Composite Reliability (rho_c)
Compensation (X1)	0.986	0.989

Variable	Cronbach's Alpha	Composite Reliability (rho_c)
Engagement (X2)	0.981	0.986
Competence (X3)	0.985	0.989
Organizational Culture (X4)	0.974	0.981
Employee Performance (Y)	0.965	0.975
Digitalization Implementation (Z1)	0.958	0.969
Leadership (Z2)	0.951	0.964

Source: Data processed by researchers (SmartPLS 4.0), 2026

Table 3 presents the reliability test results. Based on the table above, it shows that the Cronbach's Alpha value of each variable is > 0.70 , and the Composite Reliability value of each variable is > 0.70 . It can be concluded that each variable has met the reliability criteria based on Cronbach's Alpha and Composite Reliability and has a high level of reliability (Nunnally & Bernstein, 1994).

Table 4. R-Square Results

Variable	R-Square	R-Square Adjusted
Employee Performance (Y)	0.691	0.684
Digitalization Implementation (Z1)	0.669	0.664
Leadership (Z2)	0.540	0.533

Source: Data processed by researchers (SmartPLS 4.0), 2026

Table 4 presents the R-Square results. Based on the table above, it shows that the R-Square value for the Employee Performance (Y) variable is 0.691 which means that it is included in the strong category. Furthermore, the R-Square value for the Digitalization Implementation variable (Z1) is 0.669 which means it is included in the strong category. The R-Square value for the Leadership variable (Z2) is 0.540 which means it is included in the medium category (Hair et al., 2019).

Table 5. Hypothesis Test Results (Direct Effects)

Hypothesis	Path	Original Sample (O)	T-Statistics	P-Values	Result
H1	Compensation (X1) → Employee Performance (Y)	0.223	5.296	0.000	Supported
H2	Compensation (X1) → Digitalization Implementation (Z1)	0.433	13.163	0.000	Supported
H3	Compensation (X1) → Leadership (Z2)	0.353	8.328	0.000	Supported
H4	Engagement (X2) → Employee Performance (Y)	0.226	5.690	0.000	Supported
H5	Engagement (X2) → Digitalization Implementation (Z1)	0.380	10.456	0.000	Supported
H6	Engagement (X2) → Leadership (Z2)	0.318	8.170	0.000	Supported
H7	Competence (X3) → Employee Performance (Y)	0.195	4.585	0.000	Supported
H8	Competence (X3) → Digitalization	0.395	10.228	0.000	Supported

Hypothesis	Path	Original Sample (O)	T-Statistics	P-Values	Result
	Implementation (Z1)				
H9	Competence (X3) → Leadership (Z2)	0.397	9.888	0.000	Supported
H10	Organizational Culture (X4) → Employee Performance (Y)	0.159	3.803	0.000	Supported
H11	Organizational Culture (X4) → Digitalization Implementation (Z1)	0.388	11.188	0.000	Supported
H12	Organizational Culture (X4) → Leadership (Z2)	0.356	9.548	0.000	Supported
H13	Digitalization Implementation (Z1) → Employee Performance (Y)	0.244	4.189	0.000	Supported
H14	Leadership (Z2) → Employee Performance (Y)	0.248	4.355	0.000	Supported

Source: Data processed by researchers (SmartPLS 4.0), 2026

Table 5 presents the direct effects hypothesis testing results. The results show that all hypotheses (H1 to H14) are supported, as all path coefficients have T-Statistics values greater than 1.96 and P-Values less than 0.050.

First, Compensation (X1) has a positive effect on Employee Performance (Y) resulting in a coefficient value of 0.223 with a T-Statistic value of $5.296 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Compensation variable (X1) has a significant effect on the Employee Performance variable (Y), so the hypothesis (H1) is accepted.

Second, Compensation (X1) has a positive effect on the Implementation of Digitalization (Z1) resulting in a coefficient value of 0.433 with a T-Statistic value of $13.163 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Compensation variable (X1) has a significant effect on the Digitalization Implementation variable (Z1), so that the hypothesis (H2) is accepted.

Third, Compensation (X1) has a positive effect on Leadership (Z2) resulting in a coefficient value of 0.353 with a T-Statistic value of $8.328 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Compensation variable (X1) has a significant effect on the Leadership variable (Z2), so the hypothesis (H3) is accepted.

Fourth, Engagement (X2) has a positive effect on Employee Performance (Y) resulting in a coefficient value of 0.226 with a T-Statistic value of $5.690 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Engagement variable (X2) has a significant effect on the Employee Performance variable (Y), so the hypothesis (H4) is accepted.

Fifth, Engagement (X2) has a positive effect on the Implementation of Digitalization (Z1) resulting in a coefficient value of 0.380 with a T-Statistic value of $10.456 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Engagement variable (X2) has a significant effect on the Digitalization Implementation variable (Z1), so the hypothesis (H5) is accepted.

Sixth, Engagement (X2) has a positive effect on Leadership (Z2) resulting in a coefficient value of 0.318 with a T-Statistic value of $8.170 > 1.96$ and P values of 0.000

< 0.050 . Thus, the Engagement variable (X2) has a significant effect on the Leadership variable (Z2), so the hypothesis (H6) is accepted.

Seventh, Competence (X3) has a positive effect on Employee Performance (Y) resulting in a coefficient value of 0.195 with a T-Statistic value of $4.585 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Competence variable (X3) has a significant effect on the Employee Performance variable (Y), so that the hypothesis (H7) is accepted.

Eighth, Competence (X3) has a positive effect on the Implementation of Digitalization (Z1) resulting in a coefficient value of 0.395 with a T-Statistical value of $10.228 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Competence variable (X3) has a significant effect on the Digitalization Implementation variable (Z1), so that the hypothesis (H8) is accepted.

Ninth, Competence (X3) has a positive effect on Leadership (Z2) resulting in a coefficient value of 0.397 with a T-Statistical value of $9.888 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Competence variable (X3) has a significant effect on the Leadership variable (Z2), so that the hypothesis (H9) is accepted.

Tenth, Organizational Culture (X4) has a positive effect on Employee Performance (Y) resulting in a coefficient value of 0.159 with a T-Statistic value of $3.803 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Organizational Culture variable (X4) has a significant effect on the Employee Performance variable (Y), so the hypothesis (H10) is accepted.

Eleventh, Organizational Culture (X4) has a positive effect on the Implementation of Digitalization (Z1) resulting in a coefficient value of 0.388 with a T-Statistic value of $11.188 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Organizational Culture variable (X4) has a significant effect on the Digitalization Implementation variable (Z1), so the hypothesis (H11) is accepted.

Twelfth, Organizational Culture (X4) has a positive effect on Leadership (Z2) resulting in a coefficient value of 0.356 with a T-Statistical value of $9.548 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Organizational Culture variable (X4) has a significant effect on the Leadership variable (Z2), so the hypothesis (H12) is accepted.

Thirteenth, the Implementation of Digitalization (Z1) has a positive effect on Employee Performance (Y) resulting in a coefficient value of 0.244 with a T-Statistic value of $4.189 > 1.96$ and P values of $0.000 < 0.050$. Thus, the variable of Digitalization Implementation (Z1) has a significant effect on the variable of Employee Performance (Y), so that the hypothesis (H13) is accepted.

Fourteenth, Leadership (Z2) has a positive effect on Employee Performance (Y) resulting in a coefficient value of 0.248 with a T-Statistical value of $4.355 > 1.96$ and P values of $0.000 < 0.050$. Thus, the Leadership variable (Z2) has a significant effect on the Employee Performance variable (Y), so the hypothesis (H14) is accepted.

Table 6. Mediation Testing Results

Hypothesis	Indirect Path	Original Sample (O)	T-Statistics	P-Values	Result
H15	Compensation (X1) → Digitalization Implementation (Z1) → Employee Performance (Y)	0.106	3.975	0.000	Supported
H16	Compensation (X1) → Leadership (Z2) → Employee Performance (Y)	0.088	4.016	0.000	Supported

H17	Engagement (X2) → Digitalization Implementation (Z1) → Employee Performance (Y)	0.093	3.777	0.000	Supported
H18	Engagement (X2) → Leadership (Z2) → Employee Performance (Y)	0.079	3.903	0.000	Supported
H19	Competence (X3) → Digitalization Implementation (Z1) → Employee Performance (Y)	0.096	3.860	0.000	Supported
H20	Competence (X3) → Leadership (Z2) → Employee Performance (Y)	0.098	3.912	0.000	Supported
H21	Organizational Culture (X4) → Digitalization Implementation (Z1) → Employee Performance (Y)	0.095	3.971	0.000	Supported
H22	Organizational Culture (X4) → Leadership (Z2) → Employee Performance (Y)	0.088	4.088	0.000	Supported

Source: Data processed by researchers (SmartPLS 4.0), 2026

Table 6 presents the mediation testing results. Based on the indirect effect above, it can be seen that the application of Digitalization (Z1) significantly mediated the relationship between Compensation (X1) and Employee Performance (Y), resulting in a coefficient value of 0.106 with a value of T-Statistics = 3.975 > 1.96 and P-Values = 0.000 < 0.050. Thus, the compensation variable (X1) affects the employee performance variable (Y) through the digitization implementation variable (Z1) as the mediation variable, so that the mediation hypothesis (15) is accepted.

Leadership (Z2) significantly mediated the relationship between Compensation (X1) and Employee Performance (Y), resulting in a coefficient value of 0.088 with a T-Statistics value of 4.016 > 1.96 and P-Values of 0.000 < 0.050. Thus, the Compensation variable (X1) affects the Employee Performance variable (Y) through the Leadership variable (Z2) as the mediation variable, so that the mediation hypothesis (H16) is accepted.

The application of Digitalization (Z1) significantly mediated the relationship between Engagement (X2) and Employee Performance (Y), resulting in a coefficient value of 0.093 with a T-Statistics value of 3.777 > 1.96 and P-Values of 0.000 < 0.050. Thus, the Engagement variable (X2) affects the Employee Performance variable (Y) through the Digitalization Implementation variable (Z1) as the mediation variable, so that the mediation hypothesis (H17) is accepted.

Leadership (Z2) significantly mediated the relationship between Engagement (X2) and Employee Performance (Y), resulting in a coefficient value of 0.079 with a T-Statistics value of 3.903 > 1.96 and P-Values of 0.000 < 0.050. Thus, the Engagement variable (X2)

affects the Employee Performance variable (Y) through the Leadership variable (Z2) as a mediation variable, so that the mediation hypothesis (H18) is accepted.

The application of Digitalization (Z1) significantly mediated the relationship between Competence (X3) and Employee Performance (Y), resulting in a coefficient value of 0.096 with a T-Statistics value of $3.860 > 1.96$ and P-Values of $0.000 < 0.050$. Thus, the Competence variable (X3) affects the Employee Performance variable (Y) through the Digitalization Implementation variable (Z1) as the mediation variable, so that the mediation hypothesis (H19) is accepted.

Leadership (Z2) significantly mediated the relationship between Competence (X3) and Employee Performance (Y), resulting in a coefficient value of 0.098 with a T-Statistics value of $3.912 > 1.96$ and P-Values of $0.000 < 0.050$. Thus, the Competence variable (X3) affects the Employee Performance variable (Y) through the Leadership variable (Z2) as a mediation variable, so that the mediation hypothesis (H20) is accepted.

The implementation of Digitalization (Z1) significantly mediated the relationship between Organizational Culture (X4) and Employee Performance (Y), resulting in a coefficient value of 0.095 with a T-Statistics value of $3.971 > 1.96$ and P-Values of $0.000 < 0.050$. Thus, the Organizational Culture variable (X4) affects the Employee Performance variable (Y) through the Digitalization Implementation variable (Z1) as the mediation variable, so that the mediation hypothesis (H21) is accepted.

Leadership (Z2) significantly mediated the relationship between Organizational Culture (X4) and Employee Performance (Y), resulting in a coefficient value of 0.088 with a T-Statistics value of $4.088 > 1.96$ and P-Values of $0.000 < 0.050$. Thus, the Organizational Culture variable (X4) affects the Employee Performance variable (Y) through the Leadership variable (Z2) as the mediation variable, so that the mediation hypothesis (H22) is accepted.

4.2 Discussion

4.2.1 Compensation Affects Employee Performance, Digitalization Implementation, and Leadership

The results of the study show that compensation has a positive and significant effect on employee performance, digitalization implementation, and leadership in PTPN IV Regional I. The value of the effect of compensation on the implementation of digitalization is 0.433 indicates that a fair and competitive compensation system is able to increase employee readiness in facing the organization's digital transformation. Good compensation will increase work motivation, loyalty, and employee commitment in supporting organizational change and the use of digital technology. These findings are in line with research Mohammed et al. (2022) which states that compensation has a significant effect on increasing employee productivity and performance. In addition, the research Lehmann and Beckmann (2025) explaining that the reward system and work incentives are able to strengthen the effectiveness of digital transformation in the organization. Thus, compensation is a strategic factor in supporting the increase in work effectiveness and the success of company digitalization.

4.2.2 Engagement Affects Employee Performance, Digitalization Implementation, and Leadership

Engagement has also been proven to have a positive and significant effect on employee performance, the implementation of digitalization, and leadership. The value of the engagement coefficient for the implementation of digitalization of 0.380 shows that

emotional attachment and employee work involvement are able to increase support for the implementation of digital technology in the organization. Employees who have high engagement tend to be more adaptive to change, more actively participate in the organization, and have a strong commitment to achieving company goals. The results of this study support the theory Schaufeli and Bakker (2004) which explains that engagement consists of vigor, dedication, and absorption which are able to increase the effectiveness of individual work. Research Awalia and Yanuar (2024) found that Employee engagement has a significant effect on improving organizational citizenship behavior and organizational productivity. Thus, engagement is an important factor in strengthening organizational effectiveness in the era of digital transformation.

4.2.3 Competence Affects Employee Performance, Digitalization Implementation, and Leadership

Competence have a positive and significant influence on employee performance, digitalization implementation, and leadership. The effect of competency on leadership of 0.397 shows that employees' abilities, skills, and knowledge are important factors in increasing organizational effectiveness. Competent employees tend to be more adaptable to technology, have better problem-solving skills, and are able to complete work effectively and professionally. These findings are in line with research Chaudhari et al. (2024) which explains that digital competencies have a significant influence on the effectiveness of digital transformation and the improvement of organizational performance. In addition, the research Rohimi et al. (2024) It also shows that competency development is able to improve service quality, work effectiveness, and organizational productivity in a sustainable manner. Thus, competence becomes a strategic asset for the organization in dealing with business changes and technological developments.

4.2.4 Organizational Culture Affects Employee Performance, Digitalization Implementation, and Leadership

Organizational culture has also been proven to have a positive and significant effect on employee performance, digitalization implementation, and leadership. The value of the organizational culture coefficient for the implementation of digitalization of 0.388 shows that an innovative, collaborative, and adaptive work culture is able to accelerate the success of the organization's digital transformation. A strong organizational culture can build a harmonious work environment, increase employee loyalty, and strengthen organizational effectiveness in the face of dynamic business changes. The results of this study support the research Ferreira et al. (2018) which states that adaptive organizational culture has an important influence on the effectiveness of an organization's digital transformation. Research Skamto (2023) It also explains that organizational culture has a significant effect on improving employee performance and organizational productivity. Thus, organizational culture is an important foundation in improving the company's competitiveness in a sustainable manner.

4.2.5 Digitalization Implementation Affects Employee Performance

The application of digitalization has a positive and significant effect on employee performance with a coefficient value of 0.244. These results show that the use of digital technology in organizational activities is able to increase work effectiveness, speed up operational processes, improve service quality, and support faster and more accurate decision-making. These findings support research Sia et al. (2021) which states that

digital transformation is able to improve organizational effectiveness and the quality of human resources through a more modern and integrated work system. Furthermore, Verhoef et al. (2021) explaining that digitalization is an important organizational strategy in increasing the efficiency and competitiveness of companies in the modern business era. Thus, the implementation of digitalization is an important factor in increasing employee work productivity at PTPN IV Regional I.

4.2.6 Leadership Affects Employee Performance

Leadership has also been proven to have a positive and significant effect on employee performance with a coefficient value of 0.248. These results show that leaders who are able to provide motivation, direction, communication, and work support to subordinates will improve the quality of work and employee productivity. In the era of digital transformation, adaptive leadership is an important factor in maintaining organizational effectiveness and accelerating decision-making. These findings support previous research by Praditya et al. (2023) which states that digital leadership is able to improve organizational effectiveness and the quality of employee work collaboration. In addition, the research Rukmana (2020) It also explains that leadership has a significant effect on work motivation, organizational commitment, and employee performance. Thus, leadership becomes a strategic factor in increasing organizational effectiveness and the success of the company's digital transformation.

4.2.7 The Mediating Role of Digitalization Implementation and Leadership

The results of the mediation test showed that the application of digitalization and leadership was able to mediate the relationship between compensation, engagement, competence, and organizational culture to employee performance. These findings show that the improvement of employee performance is not only directly influenced by human resource factors and organizational culture, but is also strengthened through the successful implementation of digitalization and the effectiveness of organizational leadership. The implementation of digitalization helps to improve work efficiency and flexibility, while leadership helps strengthen organizational communication, motivation, and coordination in the face of business changes. Therefore, the integration of human resource quality, organizational culture, digital transformation, and leadership factor in improving employee performance in a sustainable manner at PTPN IV Regional I.

5. Conclusion

Based on the results of the study, it can be concluded that compensation, engagement, competence, and organizational culture have a positive and significant effect on employee performance, the implementation of digitalization, and leadership at PTPN IV Regional I. This finding answers the research problem that the improvement of employee performance is not only influenced by technical factors of work, but also by the quality of human resource management, organizational culture, leadership effectiveness, and the success of digital transformation in an integrated manner. Fair compensation can increase employee motivation and readiness in the face of digitalization, engagement strengthens employee emotional involvement and work commitment, competency improves adaptability and technology-based work effectiveness, while innovative and adaptive organizational culture strengthens the success of organizational transformation. In addition, the implementation of digitalization and leadership has been proven to have a significant effect on improving work effectiveness, productivity, service quality, and

organizational decision-making. The results of mediation testing also showed that the application of digitalization and leadership was able to strengthen the relationship between compensation, engagement, competence, and organizational culture on employee performance. Thus, improving employee performance at PTPN IV Regional I requires a strong integration between human resource management, organizational culture, digital transformation, and adaptive leadership so that the organization is able to increase work effectiveness and company competitiveness in a sustainable manner in the era of digital transformation.

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