

Building Organizational Performance in the Digital Era: The Role of Human Resource Development, Leadership, and Continuous Improvement

Ramdani Agustina Harahap, Kholilul Kholik, Yohny Anwar

Abstract

This study aims to analyze the influence of Human Resources Development, Digital Leadership, and Continuous Improvement on Organizational Performance in State Civil Apparatus (ASN) and Government Employees with Work Agreements (PPPK) within the North Sumatra Provincial KPU, in line with the demands of digital transformation of election administration through the implementation of the Recapitulation Information System (Sirekap) and Electronic-Based Government System (SPBE). The study used a quantitative approach with an associative-causal design, involving 76 respondents determined through saturated sampling techniques, with data collected through questionnaires and analyzed using multiple linear regression. The results of the study show that Human Resources Development, Digital Leadership, and Continuous Improvement have a positive and significant effect on Organizational Performance both partially and simultaneously, with the contribution of the three variables reaching 91.7%, and Human Resources Development as the most dominant factor.

Keywords: : *HR Development, Digital Leadership, Continuous Improvement, Organizational Performance.*

Ramdani Agustina Harahap
Master of Management, Universitas Pembangunan Panca Budi, Indonesia
e-mail: ramdanikpusumut@gmail.com

Kholilul Kholik, Yohny Anwar
e-mail: kholilulkholik@dosen.pancabudi.ac.id, yohny.anwar@yahoo.com

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Introduction

The world of bureaucracy is currently undergoing massive transformation towards digital-based governance. Human resource development often shows that the success of development programs is highly dependent on the competence and capacity of village officials as well as community participation [1]. The development of information technology, artificial intelligence, integrated information systems, and work process automation has changed the way organizations, both private and public sectors, manage human resources, run leadership, and improve their performance. The latest bibliometric study confirms that digital transformation in human resource management (HR) has evolved from just administrative automation to interaction between humans and artificial intelligence, which is accelerating post-pandemic and becoming a determinant of organizational competitiveness [2].

The government has made digital transformation a national strategic agenda through the Electronic-Based Government System (SPBE) which is regulated in Presidential Regulation Number 95 of 2018, then strengthened by Presidential Regulation Number 132 of 2022 concerning the National SPBE Architecture, and accelerated through Presidential Regulation Number 82 of 2023 concerning the Acceleration of Digital Transformation and Integration of National Digital Services. Data from the Ministry of PANRB shows an increase in the achievement of the National SPBE Index from 2.34 ("Sufficient") in 2022 to 2.70 ("Good") in 2023, which indicates that the government's digital transformation continues to improve even though it has not run evenly across all agencies [3].

In the 2024 Simultaneous Elections and Regional Elections, the KPU implements the Recapitulation Information System (Sirekap) as a digital instrument to accelerate and increase the transparency of the vote counting process. However, this implementation faces various technical and operational obstacles, including limited access to the internet network in a number of regions, the readiness of officers' digital competencies, and the lack of socialization regarding the importance of electronic-based election data disclosure [4]

Public sector organizations still face various obstacles in implementing digital transformation, such as limited administrative skills, low data availability, limited resources, lack of technological capabilities [5], and high environmental uncertainty related to public sector governance [6]. Similarly, it was revealed by [7]. that the implementation of Sirekap was faced with various problems, such as complicated installation and activation processes, network constraints, and low user understanding of the use of the system. This condition shows that the success of the digitization of election organizing institutions is highly dependent on the readiness of employees as technical implementers in the field.

The readiness of human resources is closely related to the development of ASN competencies which is one of the main dimensions in the ASN Professionalism Index (IP ASN) which is measured by the State Civil Service Agency (BKN) based on the State Civil Service Agency

Regulation Number 8 of 2019, including the dimensions of qualifications, competence, performance, and discipline. This provision is also strengthened by Government Regulation Number 11 of 2017 jo. Government Regulation Number 17 of 2020 which requires every ASN to obtain competency development of a minimum of 20 hours of lessons per year, as well as Law Number 20 of 2023 concerning the State Civil Apparatus which explicitly encourages the strengthening of talent management, digitization of personnel governance, and electronic-based performance assessment (e-Kinerja) for ASN and PPPK (BKN, 2024). This policy emphasizes that human resource development is no longer just an administrative activity, but a strategic need to answer the demands of bureaucratic digital transformation.

According to (Sutrisno, 2019) that "in leading a group, it is imitated by the quality of leadership (Anwar, 2016). Various systematic literature reviews show that transformational leadership

styles and digital leadership consistently have a positive effect on organizational performance in the midst of technological disruption, because adaptive leaders are able to build strategic visions, encourage innovation, and foster a culture of continuous learning among employees [8]. Digital leaders are required to have strategic competence, technical skills, and human-centric at the same time, in order to be able to manage change resistance and accelerate technology adoption in the work environment [9]

The Continuous Improvement (Kaizen) strategy is one of the important dimensions in Total Quality Management (TQM) which plays a role in organizational development. Through continuous and continuous improvement, this strategy is able to improve the performance efficiency of employees and organizational units, thereby supporting the improvement of overall organizational performance [10]. The Kaizen philosophy emphasizes small but consistent improvements involving all elements of the organization, from leaders to technical implementers, in order to continuously improve work efficiency, quality, and productivity [11]. The application of Kaizen has expanded to various service institutions and public services as a means of continuous adaptation to technological changes and increasingly complex service demands.

Based on this description, there is a strong relationship between human resource development, leadership, and continuous improvement in building organizational performance in the digital era, especially in election organizing institutions such as the North Sumatra Provincial KPU which faces dual challenges: the demand for national digitalization through SPBE and the need to maintain the integrity and accuracy of election administration in regions with diverse geographical conditions and infrastructure.

Methods

Research Design

This study uses a quantitative approach with associative-causal design, which aims to test the influence of Human Resources Development, Leadership, and Continuous Improvement on Organizational Performance. The research population is all State Civil Apparatus (ASN) and Government Employees with Work Agreements (PPPK) who work at the North Sumatra Provincial KPU which totals 76 people. Given the relatively limited population, this study uses a saturated sampling technique (census), where all members of the population are made as research respondents. Data was collected through a closed questionnaire with a Likert scale of 1–5, which was compiled based on the indicators of each variable and had gone through validity tests and reliability tests before use. Data analysis was carried out using the help of the Statistical Package for the Social Sciences (SPSS) program, including classical assumption tests (normality, multicollinearity, and heteroscedasticity tests), multiple linear regression analysis to determine the magnitude of the influence of each independent variable on the bound variable, partial test (t-test) and simultaneous test (F test) to test the significance of the influence, and determination coefficient (R^2) test to determine the amount of contribution of the independent variable in the describe the bound variable.

Result and Discussion

Respondent Characteristics

Based on the results of the distribution of questionnaires to 76 ASN and PPPK respondents within the North Sumatra Provincial KPU, the following characteristics were obtained: in terms of gender, respondents were dominated by 41 men (53.9%) and 35 women (46.1%); in terms of personnel status, the majority of respondents had ASN status as many as 52 people (68.4%) and PPPK as many as 24 people (31.6%); Based on age, the most respondents were in the range of 31-40 years as many as 32 people (42.1%), followed by the age group of 41-50 years as many as 22 people (28.9%), the age under 30 years as many as 14 people (18.4%), and the age over 50 years as many as 8 people (10.5%); In terms of education level, most of the respondents had a Bachelor's (S1) education as many as 48 people (63.2%), followed by Masters (S2) as many as 18 people (23.7%) and Diploma/High School as many as 10 people (13.2%); Meanwhile, based on the working period, respondents with a working period of 5-10 years dominated as many as 34 people (44.7%), followed by 19 people (25%) with a working period under 5 years and a working period of more than 10 years as many as 23 people (30.3%). This characteristic shows that the research respondents are generally productive employees with an adequate level of education and work experience to understand and objectively assess the practices of human resource development, leadership, continuous improvement, and organizational performance within the North Sumatra Provincial KPU.

Classic Assumption Test

The classic assumption test is carried out to ensure that the regression model meets the requirements so that the results obtained are valid, unbiased, and trustworthy. In this study, the

classical assumption test includes a normality test using Kolmogorov-Smirnov (K-S), a multicollinearity test by looking at the values of Tolerance and Variance Inflation Factor (VIF), and a heteroscedasticity test using a Scatterplot graph. The regression model is stated to meet the classical assumption when the significance value of the Kolmogorov-Smirnov test is greater than 0.05, the Tolerance value is greater than 0.10 and the VIF value is less than 10, and the scatterplot distribution pattern on the Scatterplot graph is randomly spread above and below the zero axis without forming a specific pattern.

Table 1. Results of normality - Kolmogorov Smirnov
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		76
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.00075525
Most Extreme Differences	Absolute	.093
	Positive	.093
	Negative	-.047
Test Statistic		.093
Asymp. Sig. (2-tailed) ^c		.100
Monte Carlo Sig. (2-tailed) ^d	Sig.	.102
	99% Confidence Interval	
	Lower Bound	.094
	Upper Bound	.110

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Based on Table 1, the results of the normality test using Kolmogorov-Smirnov show the value of Asymp. Sig. (2-tailed) is 0.100, which is greater than 0.05, so it can be concluded that the data or residual in this study is normally distributed and has met the assumption of normality.

Table 2. Multicollinearity Test Results
Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Human Resource Development	.227	4.405
	Digital Leadership	.216	4.631
	Continuous Improvement	.900	1.111

a. Dependent Variable: Organizational Performance

Based on Table 2, the results of the multicollinearity test show that all independent variables have a Tolerance value greater than 0.10 and a Variance Inflation Factor (VIF) value of less than 10, so it can be concluded that the regression model does not experience symptoms of multicollinearity and meets the assumption of multicollinearity.

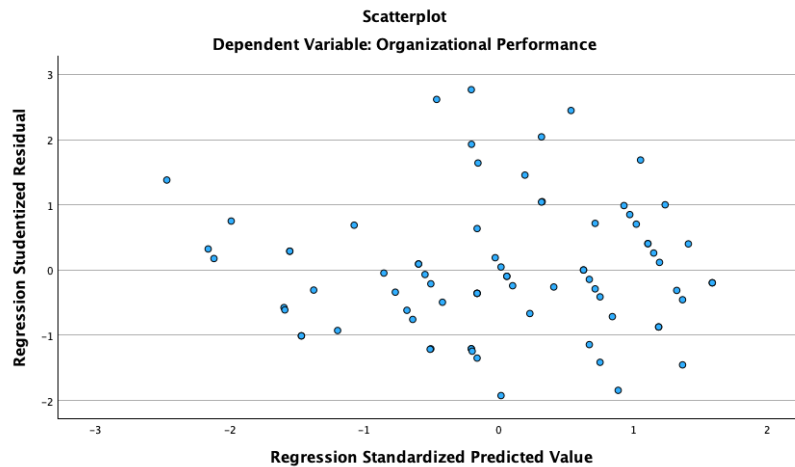


Figure 1. Scatterplot

Based on Figure 1, the results of the heteroscedasticity test using Scatterplot show that the dots are randomly spread above and below the zero axis and do not form a specific pattern, so it can be concluded that the regression model does not experience symptoms of heteroscedasticity and has met the heteroscedasticity assumptions.

Multiple Linear Regression Analysis

Multiple linear regression analysis was used to determine and analyze the influence of Human Resource Development, Leadership, and Continuous Improvement partially or simultaneously on Organizational Performance in ASN and PPPK at the North Sumatra Provincial KPU.

Table 3. Multiple Linear Regression Analysis
Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.212	1.875		-1.180	.242
	Human Resource Development	1.309	.116	.802	11.274	.001
	Digital Leadership	1.144	.079	.132	4.814	.004
	Continuous Improvement	.297	.077	.138	3.874	.001

a. Dependent Variable: Organizational Performance

Based on Table 3, the results of multiple linear regression analysis produce the following regression equations: Organizational Performance = 2,212 + 1,309 Human Resource Development + 1,144 Digital Leadership + 0,297 Continuous Improvement + e

The equation shows that a constant value of 2.212 indicates that if human resource development, digital leadership, and continuous improvement are considered constant or have a value of zero, then organizational performance has a value of 2.212. The human resource development regression coefficient of 1.309 shows that every increase in one unit of human resource development will increase organizational performance by 1.309 units assuming other variables are fixed. The digital leadership regression coefficient of 1.144 shows that every increase in one unit of digital leadership will increase organizational performance by 1.144 units, while the regression coefficient of continuous improvement of 0.297 shows that every increase of one unit of continuous improvement will increase organizational performance by 0.297 units. All regression coefficients have a positive value, thus showing that the increase in human resource development, digital leadership, and continuous improvement will be followed by an increase in organizational performance in ASN and PPPK at the North Sumatra Provincial KPU.

Uji Hypothesis

Hypothesis tests were carried out to find out whether the variables of Human Resources Development, Leadership, and Continuous Improvement had an effect on Organizational Performance. In this study, hypothesis testing was carried out through a partial test (t-test) to determine the influence of each independent variable on the dependent variable, a simultaneous test (F test) to determine the influence of all independent variables together on the dependent variable, and a determination coefficient test (R^2) to measure the magnitude of the ability of independent variables to explain the variation of dependent variables.

Based on table 3, the results of the t-test (partial) show that human resource development has a positive and significant effect on organizational performance, which is evidenced by the t-calculated value of 11.274 and the significance value of $0.001 < 0.05$. Furthermore, digital leadership also has a positive and significant effect on organizational performance, with a t-count of 4.814 and a significance value of $0.004 < 0.05$. Similarly, continuous improvement has a positive and significant effect on organizational performance, which is shown by a t-count of 3.874 and a significance value of $0.001 < 0.05$. Thus, partially the three independent variables were proven to have a positive and significant influence on the organizational performance of ASN and PPPK in the North Sumatra Provincial KPU.

Table 4. Test F Results (Simultaneous)

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	834.045	3	278.015	266.492	<.001 ^b
	Residual	75.113	72	1.043		
	Total	909.158	75			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Continuous Improvement, Human Resource Development, Digital Leadership

Based on Table 4, the results of the F-test (simultaneous) show that the F-calculation value is 266.492 with a significance value of $0.001 < 0.05$, so it can be concluded that Human Resource Development, Digital Leadership, and Continuous Improvement together (simultaneously)

have a positive and significant effect on Organizational Performance in ASN and PPPK in the KPU of North Sumatra Province. These results show that the better the human resource development, digital leadership, and the implementation of continuous improvement at the same time, the higher the organizational performance will be produced.

Table 5. Coefficient of Determination (R²)

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.958 ^a	.917	.914	1.021

a. Predictors: (Constant), Continuous Improvement, Human Resource Development, Digital Leadership

b. Dependent Variable: Organizational Performance

Based on Table 5, the results of the determination coefficient (R²) test showed an R Square value of 0.917 and an Adjusted R Square of 0.914. This means that 91.4% of organizational performance variations can be explained by the variables of Human Resource Development, Digital leadership, and Continuous Improvement, while the remaining 8.6% are influenced by other factors outside the research model that were not studied.

The finding that Human Resources Development is the most dominant factor ($\beta = 0.802$) is in line with the actual condition of the North Sumatra Provincial KPU which is transitioning from a manual work system to full digitalization through Sirekap and other SPBE applications. In the field, the digital competency gap between employees, especially between officers in provincial capitals and officers in districts/cities with limited internet access, makes training and capacity building an urgent need, not just an administrative formality. This condition is consistent with the obligation of 20 hours of competency development lessons per year mandated by personnel regulations, but its implementation in the field often does not touch the real needs of employees, such as technical training in the operation of electronic recapitulation systems, data security, and network disruption mitigation. Thus, the magnitude of the influence of HR Development on performance indicates that investment in training that is right on target, not just the fulfillment of administrative obligations, will have a direct impact on the organization's readiness to face the next stage of elections.

The influence of Digital Leadership and Continuous Improvement which is also significant, even with a smaller contribution, illustrates that the success of the KPU's digitalization cannot run alone without the support of adaptive leadership direction and a post-election continuous evaluation mechanism. On the ground, work unit leaders who are able to translate SPBE policies into clear technical steps have been shown to accelerate the adaptation of their subordinates to changes in the work system, while the absence of regular evaluation of technical constraints (such as Sirekap disruptions in difficult geographical areas) risks repeating the same problem in the next election. The R² value of 0.917 indicates that almost all variations in Organizational Performance can be explained by these three variables, so the implication is that the strategy for institutional strengthening of the KPU of North Sumatra Province in the future needs to be simultaneously focused on three things: digital training based on field needs, strengthening adaptive leadership capacity at the work unit level, and the

formation of a post-election evaluation-improvement system, instead of relying only on one aspect only.

Conclusion

The success of the North Sumatra Provincial KPU in facing the demands of election digitalization is highly dependent on the readiness of the digital competencies of ASN and PPPK as the main determining factor, which needs to be supported by the leadership of the work unit that is able to translate the SPBE policy into technical steps in the field as well as a mechanism for continuous evaluation-improvement after the election, so that technical obstacles such as Sirekap disruptions in areas with limited internet access are not repeated in the implementation of the election next.

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