

# The Nexus of Digital Transformation and Transformational Leadership on Organizational Performance as Mediated by Innovative Work Behaviors

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## ABSTRACT

The research does not adequately address or completely comprehend the implications of digital transformation, work innovation, and transformational leadership on organizational performance for vocational schools in South Borneo Province. The research sought to describe creative work practices, digital transformation, transformational leadership, and organizational performance. Additionally, the study aimed to determine the effects of the independent variables of digital transformation, creative work practices, and transformational leadership on the dependent variable of organizational performance. A quantitative research methodology was employed in this investigation. Using simple random selection, the study's sample size consisted of 100 headmasters from public and private vocational schools. The data analysis was done using Smart PLS version 4.1. The results show that Transformational Leadership has a positive relationship with Innovative Work Behaviors. Also, Innovative Work Behavior has a positive relationship with Organizational Performance and is enabling. Nonetheless, Digital Transformation does not affect innovative work behaviors. It also has a positive and significant effect on organizational performance. Furthermore, Innovative Work Behaviors were found to play a mediating role between Transformational Leadership and Organizational Performance. However, it does not function as a mediator between Transformational Leadership and Organizational Performance. Therefore, it is crucial to improve the effectiveness of vocational schools, that is, the levels of employees' satisfaction, the numbers of students, the quality of graduates, and the efficiency of operations by implementing digital transformation and transformational leadership. Digital technology should be integrated into the daily activities of vocational schools and enhanced frequently. The vocational schools must work in sync, listen actively, hold open forum, share their plan and treat their employees right. Digital transformation and transformational leadership enhance the performance of vocational schools when staff exhibit innovative work behaviors, including creative ideas for efficient, effective, and productive school management, as well as implementing and assessing those ideas.

**Keywords:** Transformational Leadership, Innovative Work Behavior, Digital Transformation, Organizational Performance, Vocational Schools

## INTRODUCTION

One of the goals of development in Indonesia is to educate the nation. Departing from the mandate of the constitution, that the State's task is to improve and fulfill basic needs, namely the world of education. Therefore, entering the global and digital world requires certain competencies to compete with other nations in terms of mastery of technology. In the swiftly changing digital age, businesses in multiple industries must adopt transformation to remain competitive and sustainable. Educational establishments, especially Vocational Schools, are not excluded. Vocational Schools, as hubs for skill development and workforce readiness, need to adjust to technological progress and new practices to improve their operational effectiveness. The relationship between transformational leadership, creative work practices, and digital transformation in the context of vocational schools has not yet been fully explored, despite the increased emphasis on digital transformation and leadership methods.

In Indonesia, graduates of vocational schools encounter major difficulties in finding jobs, even though the education system aims to equip them for particular professions. In 2023, the unemployment rate for vocational school graduates was 9.01%, the highest of any educational tier. In contrast, the unemployment rate for senior high school graduates was 7.05%, for diploma holders it was 4.83%, and for university graduates it was 5.25%, as illustrated in the following Table 1.

Table 1: Unemployment Rate by Education Level 2024

Education Level	Unemployment %
Not attending school, never attending school, or not graduating from elementary school	2,32
Junior High School	4,11
Senior High School	7.05
Vocational Senior High School	9,01
Diploma I, II, and III	4,83
College	5,25

Source: BPS, Statistics Indonesia, 2025.

The elevated unemployment levels among vocational graduates indicate a notable disparity between the education system and the requirements of the labor market. Numerous vocational institutions still provide programs that fail to match present industry demands, resulting in a surplus of employees in some areas and a deficit in others.

Tackling this challenge demands a holistic strategy, comprising the revision of vocational programs to align with industry needs, boosting cooperation between educational entities and companies, and equipping students with pertinent certifications and hands-on experience to enhance their job prospects.

To enhance their organizational performance, vocational schools must prioritize the incorporation of digitalization into both their curriculum and operations.

Organizations can increase operational effectiveness and decision-making by putting in place digital management systems, using real-time data analytics, and conducting online performance monitoring. This enhances job prospects while also bolstering the school's reputation and appeal to potential students and industry collaborators.

By adopting digital transformation, vocational schools can greatly enhance the employability of their graduates while also elevating their operational effectiveness. The collaboration between digitalization and employability is essential for tackling the challenges of vocational education in Indonesia and fostering a more competitive workforce.

Studies on digital transformation in education have mainly concentrated on the integration of technology and its effects on teaching and learning. Innovative work practices are regarded as essential to the success of an organization, and transformational leadership is acknowledged for its capacity to encourage and inspire staff members to welcome change. However, there is currently a dearth of study on how innovative work practices, transformational leadership, and digital transformation all affect organizational performance in vocational schools. The extent to which creative work practices in educational contexts are impacted by digital transformation is also still up for debate.

Current literature mainly emphasizes corporate environments and higher education institutions, resulting in a research void regarding Vocational Schools, especially in developing areas such as South Borneo Province. The influence of digital transformation on innovative work behavior remains unclear, and previous research frequently neglects the mediating effect of innovative work behavior in the connection between leadership and organizational performance. Moreover, there is a deficiency of empirical proof regarding the effectiveness of leadership approaches in promoting digital adoption within educational settings.

South Borneo is a province in Indonesia located in the southeastern part of Borneo Island. The province's capital is Banjarmasin, a city known for its floating markets and extensive river networks. As of August 2024, South Kalimantan Province reported an Open Unemployment Rate (TPT) of 4.20%, a slight decrease from 4.31% in August 2023. The Labor Force Participation Rate (TPAK) also saw an increase, reaching 70.22% in August 2024, up from 69.76% in August 2023. (Banjarmasinkota.BPS.go.id). Within the province, South Hulu Sungai (HSS) District recorded the lowest unemployment rate at 2.12%, indicating that approximately two out of every 100 individuals in the workforce were unemployed as of July 2024 (Kalsel.Antaranews.com). These figures suggest a positive trend in employment within South Kalimantan, with both a decreasing unemployment rate and an increasing labor force participation rate.

By providing empirical insights into how transformational leadership and digital transformation interact to influence creative work practices and organizational performance in vocational schools, this study contributes to the existing body of knowledge. Based on data analyzed from 100 principals of public and private vocational schools, this study highlights the importance of leadership in fostering a creative culture.

The results provide actionable suggestions for policymakers, school leaders, and educators to improve organizational effectiveness via strong leadership and digital incorporation. The research additionally guides educational policymakers on approaches to enhance digital adoption while making certain that leadership development initiatives are in sync with technological progress.

Its primary goal is to investigate how the performance of vocational schools is affected by creative work practices, transformational leadership, and digital transformation. Specifically, the study seeks to evaluate how much innovative work practices are encouraged by transformational leadership and how digital transformation contributes to creativity and improved institutional efficacy. In these relationships, the study also investigates the mediation role of creative work practices.

By examining these connections, this research aids in gaining a more profound insight into the factors that influence the efficacy of Vocational Schools. The findings from this study offer critical implications for policymakers, educators, and school leaders, emphasizing the importance of nurturing a culture of innovation and strategic management to enhance digital transformation efforts and boost institutional effectiveness. The previously mentioned issues may be attributed to the relationships among independent variables of digital transformation and transformational leadership, with Innovative Work Behavior acting as an intervening variable and organizational performance as the dependent variable.

According to Plomaritou and Jeropoulos (2022), digital transformation is the process of rearranging key business activities, processes, and models in order to take advantage of the advantages offered by digital technologies. This will ultimately improve customer service and raise the value of the company. It is often described as a shift in businesses that use data-driven innovation to modify

business processes, goods, services, and interactions in order to increase value for the company and its stakeholders (Philippart, 2021). Furthermore, digital transformation includes using digital technology to collect information, analyze data, and aid in decision-making (Cui, 2023).

According to the definitions provided, Digital transformation refers to the integration of digital technologies aimed at improving business processes, operations, and models, generating value for stakeholders through data-driven innovation, enhanced decision-making, and superior customer service while promoting cultural changes to accept digital solutions.

There are multiple factors to evaluate Digital Transformation. The components consist of discovery, development, demonstration, deployment (Philippart, 2021), technology scope, transformation area, and transformation impact (Cui, 2023).

Multiple indicators exist to assess Digital Transformation. These are the agreements that schools have utilized digital technology to modify business processes, services, and stakeholder relationships, that employees are proficient in using digital technology, that schools have successfully transformed processes, operations, and business models through digital technology, and that there has been a positive influence from digital technology through enhanced services to students, parents, and other stakeholders, providing additional value to the school for its stakeholders.

Transformational leadership is an approach to leadership that impacts and modifies the behaviors of individuals (Jakavonytė & Barkauskienė, 2023). It represents an optimistic outlook and perspective that motivates excitement and inventiveness among team members, fosters risk-taking, and improves flexibility to change, thereby promoting innovation within an organization (Yu & Xiang, 2024). Furthermore, transformational leadership is defined by a reciprocal motivation between leaders and their followers, encouraging elevated ethical principles while advocating for justice and equality (Mekonnen & Bayissa, 2023). It can be inferred that Transformational leadership is a style that motivates and enables people with an optimistic vision, encouraging creativity, flexibility, and innovation, while upholding ethics, fairness, and equality to reach common objectives.

There are several aspects to assess Transformational Leadership. They include leadership effectiveness, organizational philosophy, team dynamics, learning and development, work environment, environmental climate, and the seven aspects of educational value and policy (Meng, 2022), in addition to personalized attention, intellectual stimulation, inspirational motivation, and idealized influence (Mekonnen & Bayissa, 2023). To promote significant change and innovation in businesses and society, a leader must be able to inspire and motivate team members through intellectual engagement, personal charm, and individualized attention (Yu & Xiang, 2024).

Transformational leadership can be evaluated using a variety of indicators (Muis & Isyanto, 2021). According to these agreements, university administrators actively listen to their units and work together to create the yearly operating budget. University executives never publicly show their rage at staff workers, and they have open dialogues with lower management levels, departments, academics, and students, always focusing on the common goal to be achieved.

Innovative work behavior is a complex process where individuals generate, present, and execute new concepts (Alessa & Durugbo, 2022). It is a conscious effort by people focused on creating and utilizing new concepts, methods, products, or practices within a particular position, team, or organization, intending to produce significant advantages for individuals, groups, organizations, or society overall (Utomo, 2023). Moreover, it has been demonstrated that innovative work behavior greatly influences university performance. Innovative Work Behavior refers to a multifaceted and deliberate action in which people create, propose, and execute novel ideas, processes, or products for the advantage of roles, groups, organizations, or society.

There are various aspects to assess Innovation Work Behavior. The processes include conception of ideas, advocacy for ideas, and execution of ideas (Soputan, 2022). Creation, launch, and execution (Alessa & Durugbo, 2022), cultivating, embracing, and putting into practice innovative concepts for products, technologies, and work practices among staff (Srirahayu, 2023).

Multiple indicators exist to assess Innovative Work Behavior. These are the agreements that the school has established to allow employees to share innovative ideas, ensuring the school is run efficiently, effectively, and productively. Employees at the schools have offered creative suggestions for improvement, which have been put into practice, and the implementation of these innovative ideas has aided in resolving issues in school management.

Prior research on performance management mostly focused on financial and operational aspects that have a direct impact on organizational strategy and competitiveness (Olan, 2022). Organizational performance is currently assessed by the organization's capability to effectively manage and analyze data securely with advanced technology to foster innovation (Chaudhuri, 2024). Financial outcomes like profit and market value, organizational outcomes like customer happiness and productivity, and human resource outcomes like employee commitment and work satisfaction are only a few of its many facets (Nyathi & Kekwaletswe, 2024).

In conclusion, Organizational performance is a comprehensive evaluation of an entity's capability to meet its goals through the integration of operational, financial, and strategic results, effectively managing data with advanced technologies to boost innovation, while balancing financial outcomes, organizational efficiency, customer contentment, and employee dedication.

Organizational performance can be measured using a few different dimensions. Management Commitment, HR Practices, Process Product, and Innovation Product (Ahmed, 2023); lower disposal costs; higher sales income; efficient cost management (Hyder, 2023); and financial, organizational, and human resource outcomes (Nyathi, 2024).

There are several indicators to measure Organizational Performance adopted from Muis & Isyanto, (2021). Those are the agreements that employees feel satisfied working at schools, that acceptance of new students at schools is always in accordance with target and capacity, that most of school graduates have been accepted into the job market and further study at universities, and that all of employees use resources efficiently in carrying out their work.

The impact of innovative work behaviors, transformational leadership, and digital transformation on organizational performance has been the subject of conflicting research findings. According to Erhan (2022) and Parnitvitidkun (2021), innovative work behaviors are positively and significantly impacted by digital transformation.

However, Theng, (2021) explains that Digital transformation has no significant effect on Innovative Work Behaviors. Then, Transformational Leadership affects Innovative Work Behaviors positively and significantly. However Sudibjo and Prameswari (2021), and Manafi and Subramaniam (2015), confirm that transformational leadership negatively influences Innovative Work Behaviors. In addition, Al-Husseini & Elbeltagi, (2018) confirms that Innovative Work Behaviors has a positive and significant effect on organizational performance. However, Cui (2023) confirm that Innovative Work Behaviors does not have a positive and significant effect on organizational performance.

Furthermore, some earlier researchers have used intervening variables to examine the connection between organizational success and digital transformation. Organizational agility and big data capabilities are the intervening variables. The researchers have verified that the association between transformational leadership and organizational performance is mediated by the aforementioned characteristics. They are the Knowledge Management Process (Al-Husseini and Elbeltagi, 2018), Organizational Innovation, and Organizational Change Capability (García-Morales, 2012).

The various units of analysis may be the source of the disparate outcomes. As a result, the factors under study may have various connections. The leadership of profit-oriented commercial entities makes up nearly all of the analysis units in earlier studies. As a result, there is little discussion or understanding of how innovative work behaviors (an intervening variable) and digital transformation and transformational leadership (independent variables) affect organizational performance (a dependent variable) in the setting of vocational schools.

With reference to other studies, the researchers' goal is to examine how innovative work behaviors, transformational leadership, and digital transformation affect organizational performance in vocational schools. It is anticipated that it will advance management science, particularly strategic management, both theoretically and practically. In practice, university administrators can use the research findings to enhance the caliber of their administration.

Two contributions to the literature study are anticipated from the researchers. The researcher first explains the application of digital transformation, transformational leadership, innovative work behaviors, and organizational performance utilizing primary survey data from 100 samples of South Kalimantan's vocational schools. Second, the researcher confirms that the link between independent and dependent variables has an intervening variable. The researcher examines the variable of Innovative Work Behaviors, which influences the link between Transformational Leadership and Digital Transformation on Organizational Performance.

According to the researchers, putting transformational leadership and digital transformation into practice will foster innovative work behaviors that can improve an organization's performance. Thus, it is proposed that Innovative Work Behaviors act as a mediator between transformational leadership and digital transformation and organizational success. The following formulation of the hypotheses is based on a conceptual research model shown in Figure 1.

H1: Digital Transformation has the effect on Innovative Work Behaviors

H2: Transformational Leadership has the effect on Innovative Work Behaviors

H3: Innovative Work Behaviors has the effect on Organizational Performance

H4: Innovative Work Behaviors mediates the relationship between Transformational Leadership and Organizational Performance.

H5: Innovative Work Behaviors mediates the relationship between Digital Transformation and Organizational Performance.

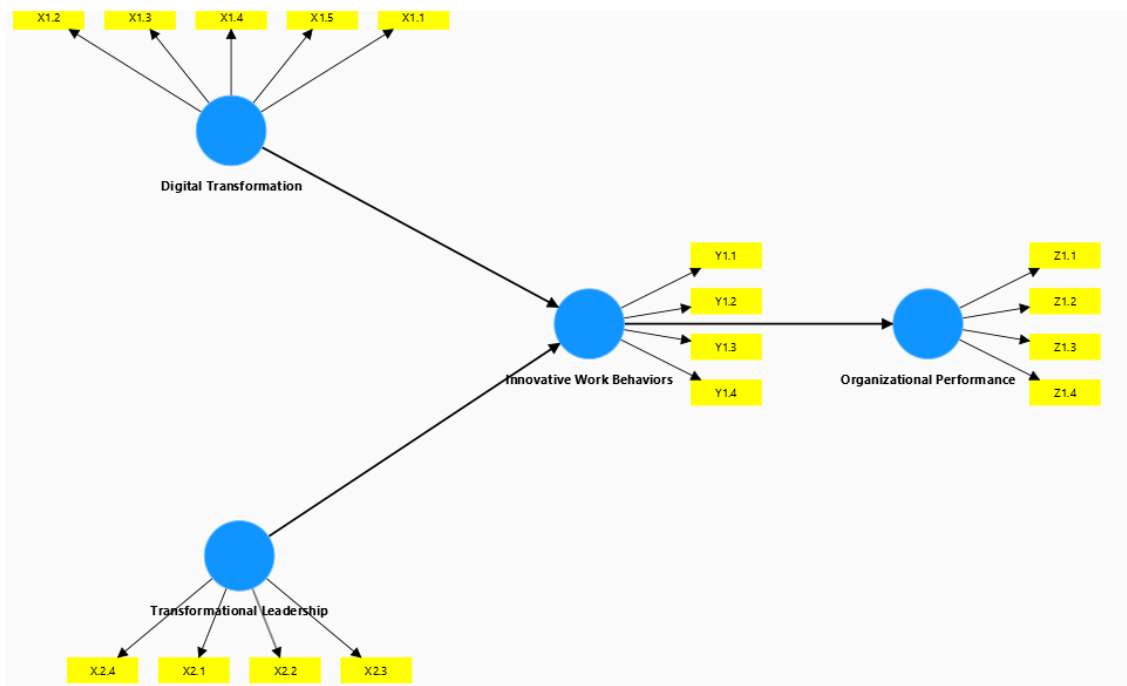


Figure 1 Structural Research Model

## METHODS

This study uses a quantitative approach and is quantitative in nature. Both primary and secondary data are used in the study. Journals, literature reviews, and other material are examples of secondary data that bolster original data. In the meanwhile, primary data is gathered via respondents' questionnaire responses. 127 headmasters of State and Private Vocational Schools in South Kalimantan, Indonesia, make up the research population. One hundred people are taking part in this study. Simple random sampling is the method used for sampling. Online distribution is used for the questionnaires.

The researcher then uses Smart PLS Version 4.1 to evaluate the data. It looks at how the Innovative Work Method in South Kalimantan's Vocational Schools mediates the relationship between digital transformation, digital leadership, and organizational performance. Digital Leadership and Digital Transformation are the independent factors. In the meantime, organizational performance is the dependent variable. Then, Innovative Work Behaviors is the intervening variable. As seen in Table 2, indicators are used to measure all independent, intervening, and dependent factors.

Table 2 Indicators to Measure Variables

Symbol	Indicators
	<b>Digital Transformation</b>
<b>X<sub>1.1</sub></b>	The school where I work has used digital technology in an effort to make changes to business processes, services and relationships with stakeholders
<b>X<sub>1.2</sub></b>	Employees at our school are able to use digital technology well
<b>X<sub>1.3</sub></b>	The school where I work has succeeded in making changes in processes, operations and business models by using digital technology
<b>X<sub>1.4</sub></b>	Our school has had an impact from the use of digital technology in the form of improving services to students and parents and other stakeholders as added value to the school for school stakeholders.
<b>X<sub>1.5</sub></b>	Our school continues to develop digitalization programs according to the needs of school management
	<b>Transformational Leadership</b>
<b>X<sub>2.1</sub></b>	We always apply Active listening and prepare Annual Activity Plans and Budgets together with work units in the school environment.
<b>X<sub>2.2</sub></b>	We always have open discussions with our subordinates
<b>X<sub>2.3</sub></b>	We always focus on achieving a shared vision.
<b>X<sub>2.4</sub></b>	We never scold employees in public.
	<b>Innovative Work Behaviors</b>
<b>Y<sub>1.1</sub></b>	Our school has provided access for employees to convey innovative ideas so that we manage the school efficiently, effectively and productively.
<b>Y<sub>1.2</sub></b>	Employees working in our school have contributed innovative ideas for the betterment of our school
<b>Y<sub>1.3</sub></b>	Ideas that can make our school progress have been implemented in our school.
<b>Y<sub>1.4</sub></b>	The application of innovative ideas has helped us overcome problems in school management.
	<b>Organizational Performance</b>
<b>Z<sub>1.1</sub></b>	Employees feel satisfied working at our school

<b>Z<sub>1.2</sub></b>	Acceptance of new students at our school is always in accordance with target and capacity
<b>Z<sub>1.3</sub></b>	Most of our school graduates have been accepted into the job market and further study at universities
<b>Z<sub>1.4</sub></b>	All of our employees use resources efficiently in carrying out their work.

Source: Researchers' Data Collection

### RESULTS AND DISCUSSIONS

To indicate the degree of agreement with the assertions, respondents assess each item in each dimension of the examined variables on a Likert scale from 1 to 5. Five is the highest possible score, and one is the lowest. It is between 5 and 1 = 4.08 is the range level, or 4/5. Interpretations are classified as very good (4.21–5.00), good (3.41–4.20), fair (2.61–3.40), bad (1.81–2.60), and very poor (< 1.81) based on the calculation levels. Table 3 below displays the scores for each variable:

Table 3 The Scores of All Variables

No	Variable	Score	Remark
1	Digital Transformation	4.27	Very Good
2	Transformational Leadership	4.33	Very Good
3	Innovative Work Behaviors	4.28	Very Good
4	Organizational Performance	4.17	Good

Source: Researchers' Data Collection

With an average score of 4.33, Table 3 demonstrates that Transformational Leadership is in a very strong category. Out of all the variables, it has the highest score. With average scores of 4.28 and 4.29, respectively, Innovative Work Behaviors approach and Digital Transformation are likewise in the very good category. The categorization of all independent variables is excellent. With an average score of 4.17, organizational performance as a dependent variable falls into the good category and has to be raised to the very good category.

Table 4 shows the scores of Digital Transformation as follows:

Table 4 The Scores of Indicators of Digital Transformation

Symbol	Indicator	Score	Remark
<b>X<sub>1.1</sub></b>	The school where I work has used digital technology in an effort to make changes to business processes, services and relationships with stakeholders	4.37	Very Good
<b>X<sub>1.2</sub></b>	Employees at our school are able to use digital technology well	4.34	Very Good
<b>X<sub>1.3</sub></b>	The school where I work has succeeded in making changes in processes, operations and business models by using digital technology	4.06	Good
<b>X<sub>1.4</sub></b>	Our school has had an impact from the use of digital technology in the form of improving services to students and parents and other stakeholders as added value to the school for school stakeholders.	4.38	Very Good



<b>X<sub>1.5</sub></b>	Our school continues to develop digitalization programs according to the needs of school management	4.22	Very Good
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Source: Researchers' Data Collection

The highest score in Digital Transformation is that the schools have had an impact from the use of digital technology in the form of improving services to students and parents and other stakeholders as added value to the school for school stakeholders. It is in a very good category with an average score of 4.38. The other indicators are also in Very Good categories. They are the schools have used digital technology in an effort to make changes to business processes, services and relationships with stakeholders, the employees are able to use digital technology well, and the schools continues to develop digitalization programs according to the needs of school management. The lowest score is in the indicator that the schools have succeeded in making changes in processes, operations and business models by using digital technology with an average score of 4.06. The results can be seen in Table 4.

Table 5 shows the scores of Transformational Leadership as follows:

Table 5 The Scores of Indicators of Transformational Leadership

<b>Symbol</b>	<b>Indicator</b>	<b>Score</b>	<b>Remark</b>
<b>X<sub>2.1</sub></b>	We always apply Active listening and prepare Annual Activity Plans and Budgets together with work units in the school environment.	4.40	Very Good
<b>X<sub>2.2</sub></b>	We always have open discussions with our subordinates	4.34	Very Good
<b>X<sub>2.3</sub></b>	We always focus on achieving a shared vision.	4.36	Very Good
<b>X<sub>2.4</sub></b>	We never scold employees in public.	4.35	Very Good

Source: Researchers' Data Collection

In Table 5, all indicators are in a Very Good category with an average score above 4.30. The indicators show that the headmasters are active listeners and stimulating teamwork in making plans, open discussion, shared vision and employee engagement.

Table 6 shows the scores of Innovative Work Behaviors as follows:

Table 6 The Scores of Indicators of Innovative Work Behavior

<b>Symbol</b>	<b>Indicator</b>	<b>Score</b>	<b>Remark</b>
<b>Y<sub>1.1</sub></b>	Our school has provided access for employees to convey innovative ideas so that we manage the school efficiently, effectively and productively.	4.35	Very Good
<b>Y<sub>1.2</sub></b>	Employees working in our school have contributed innovative ideas for the betterment of our school	4.20	Good
<b>Y<sub>1.3</sub></b>	Ideas that can make our school progress have been implemented in our school.	4.30	Very Good
<b>Y<sub>1.4</sub></b>	The application of innovative ideas has helped us overcome problems in school management.	4.28	Very Good

Source: Researchers' Data Collection

Table 6 shows that the indicator with the highest score is the schools have provided access for employees to convey innovative ideas so that the schools are managed efficiently, effectively and productively. It is in a very good category, and the average score is 4.35. The rest indicators are also in

Very Good categories. They are the ideas that can make school progress have been implemented and the application of innovative ideas has helped overcome problems in school management. Meanwhile, the lowest score indicator is that the employees have contributed innovative ideas for the betterment of schools. It is in the good category with an average score of 3.20.

Table 7 shows the scores of indicators of Organizational Performance as follows:

Table 7 The Scores of Indicators of Organizational Performance

Symbol	Indicator	Score	Remark
Z <sub>1.1</sub>	Employees feel satisfied working at our school	4.27	Very Good
Z <sub>1.2</sub>	Acceptance of new students at our school is always in accordance with target and capacity	4.14	Good
Z <sub>1.3</sub>	Most of our school graduates have been accepted into the job market and further study at universities	4.09	Good
Z <sub>1.4</sub>	All of our employees use resources efficiently in carrying out their work.	4.19	Good

Source: Researchers' Data Collection

Table 7 shows that the indicator with the highest score is that the employees feel satisfied working at the schools. It is in a very good category, and the average score is 4.27. The rest indicators are in Good categories such as all of employees use resources efficiently in carrying out their work and acceptance of new students is always in accordance with target and capacity. Meanwhile, the lowest score indicator is that most of our school graduates have been accepted into the job market and further study at universities. It is also in the good category with an average score of 3.20.

The measurement evaluation of the outer model is then covered in more detail. It includes validity, reliability, and structural model testing. When an indicator's loading factors exceed 0.5 in the validity test, it is deemed valid (Hair, 2021). Table 8 displays the Smart PLS output for loading factors that are determined using the PLS methodology. 0.719 is the lowest loading factor. Thus, the indicators satisfy the convergent validity requirement. Figure 2 shows the loading factor diagram for each indicator in the structural research model.

Table 8 Outer Loadings, Construct Validity and Reliability

Variables	Indicators	Outer Loading	Cronbach's Alpha	Average Variance Extract (AVE)	Composite Reliability (rho_a)	Composite Reliability (rho_c)
Digital Transformation	X <sub>1.1</sub>	0.840	0.839	0.674	0.852	0.892
	X <sub>1.2</sub>	0.801				
	X <sub>1.3</sub>	0.791				
	X <sub>1.4</sub>	0.890				
	X <sub>1.5</sub>	0.873				
Transformational Leadership	X <sub>2.1</sub>	0.770	0.895	0.705	0.905	0.923
	X <sub>2.2</sub>	0.793				
	X <sub>2.3</sub>	0.885				
	X <sub>2.4</sub>	0.833				

Innovative Work Behaviors	Y <sub>1.1</sub>	0.749	0.789	0.611	0.794	0.863
	Y <sub>1.2</sub>	0.791				
	Y <sub>1.3</sub>	0.786				
	Y <sub>1.4</sub>	0.800				
Organizational Performance	Z <sub>1.1</sub>	0.791	0.801	0.627	0.804	0.870
	Z <sub>1.2</sub>	0.719				
	Z <sub>1.3</sub>	0.826				
	Z <sub>1.4</sub>	0.828				

Source: Processed Primary Data

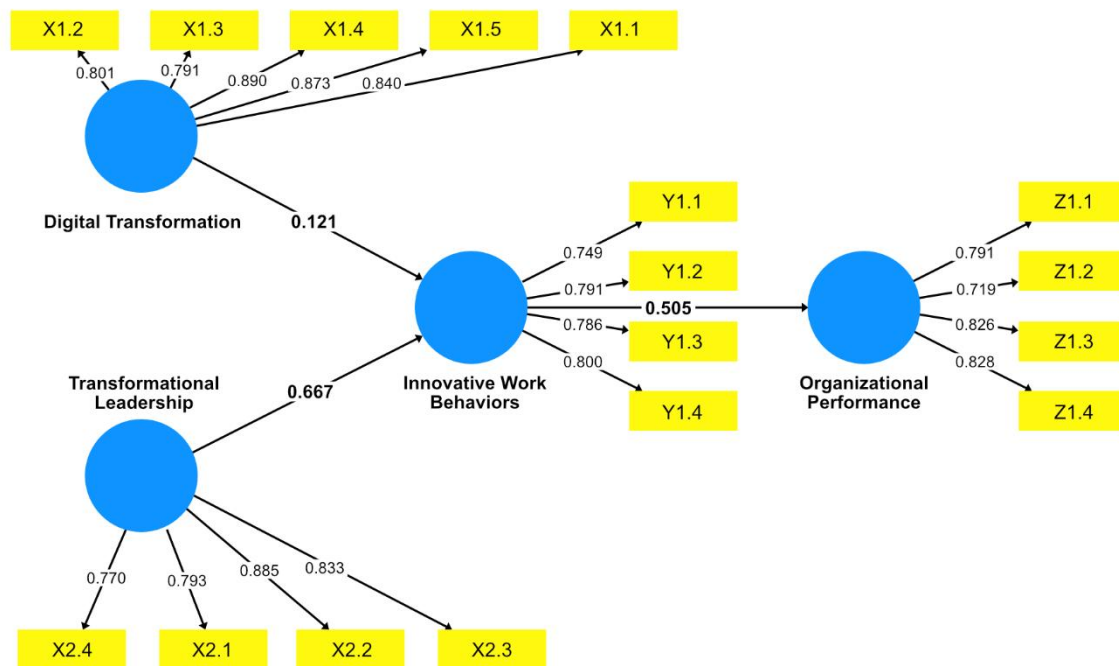


Figure 2 Loading Factor Value

The correlation between each indicator and the associated latent variable is represented by outer loadings. A higher outer loading ( $\geq 0.70$ ) indicates a strong contribution of the indicators to construct. The results in the table show that all indicators in Digital Transformation ( $X_{1.1} = 0.840$ ,  $X_{1.2} = 0.801$ ,  $X_{1.3} = 0.791$ ,  $X_{1.4} = 0.890$ ,  $X_{1.5} = 0.873$ ) have loadings above 0.70, indicating strong factor contribution. The other indicators ( $X_{2.1} = 0.793$ ,  $X_{2.2} = 0.885$ ,  $X_{2.3} = 0.833$ ,  $X_{2.4} = 0.770$ ), also show acceptable values ( $>0.70$ ), confirming good construct measurement. The indicators in Innovative Work Behaviors such as  $Y_{1.1}$  (0.749),  $Y_{1.2}$  (0.791),  $Y_{1.3}$  (0.789), and  $Y_{1.4}$  (0.800) have high  $\geq 0.70$  outer loadings, confirming that they are strong indicators of the construct. The other indicators in Organizational Performance are  $Z_{1.1}$  (0.791),  $Z_{1.2}$  (0.719),  $Z_{1.3}$  (0.826) and  $Z_{1.4}$  (0.828), exceeding 0.70, demonstrating strong relationships with the construct. Since all outer loadings are above 0.70, the indicators adequately measure their respective latent variables.

Construct validity assesses whether a set of indicators accurately represents a latent variable. The key metric here is Average Variance Extracted (AVE). AVE values should be  $\geq 0.50$  to confirm convergent validity (i.e., the indicators well represent their constructs) (Hair et al, 2021). The results show that Digital Transformation: 0.674 (Valid), Transformational Leadership: 0.705 (Valid), Innovative Work Behaviors: 0.611 (Valid), and Organizational Performance: 0.627 (Valid). Since all AVE values are above 0.50, the constructs demonstrate strong convergent validity (Hair, 2021).

Reliability measures the consistency of a construct. The key metrics are Cronbach's Alpha (CA) and Composite Reliability (CR - rho\_a and rho\_c).

Cronbach's Alpha is a measure of internal consistency; values  $\geq 0.70$  indicate good reliability (Hair et al, 2021). The results show that Digital Transformation scores 0.839 (Strong), Transformational Leadership 0.895 (Strong), Innovative Work Behaviors 0.789 (Moderate), Organizational Performance 0.801 (Strong).

Composite Reliability (CR - rho\_a and rho\_c) is a more accurate reliability measure than Cronbach's Alpha. Values  $\geq 0.70$  are acceptable, while values  $\geq 0.80$  indicate strong reliability (Hair, 2021). The results show that Digital Transformation scores 0.852 and 0.892 (Strong), Transformational Leadership: 0.905 and 0.923 (Strong), Innovative Work Behaviors: 0.794 and 0.863 (Strong), and Organizational Performance: 0.804 and 0.870 (Strong). Since all constructs have Composite Reliability above 0.70, they demonstrate strong internal consistency.

Constructs are valid as the AVE values exceed 0.50 (Hair, 2021). The reliability is strong, with Composite Reliability values all above 0.70. All outer loading values are above 0.70, confirming that the indicators effectively measure their respective constructs.

Discriminant validity assesses whether constructs in a research model are truly distinct from each other. In SmartPLS, discriminant validity is usually evaluated using three key criteria: Fornell-Larcker Criterion, Heterotrait-Monotrait (HTMT) Ratio, and Cross Loadings as shown in Table 9, Table 10 and Table 11 as follows:

Table 9 Discriminant Validity-Fornel Lacker

	Digital Leadership	Digital Transformation	Innovative Work Behaviors	Organizational Performance
Digital Leadership	0.821			
Digital Transformation	0.640	0.840		
Innovative Work Behaviors	0.744	0.547	0.782	
Organizational Performance	0.534	0.688	0.505	0.792

Source: Processed Primary Data

Table 10 Discriminant Validity-Heterotrait-Monotrait Ratio Matrix

	Transformational Leadership	Digital Transformation	Innovative Work Behaviors	Organizational Performance
Transformational Leadership				
Digital Transformation	0.743			
Innovative Work Behaviors	0.899	0.635		
Organizational Performance	0.660	0.821	0.616	

Source: Processed Primary Data

Table 11 Cross Loadings

	Digital Leadership	Digital Transformation	Innovative Work Behaviors	Organizational Performance
<b>X<sub>1.1</sub></b>	0.606	0.840	0.515	0.539
<b>X<sub>1.2</sub></b>	0.568	0.801	0.453	0.607
<b>X<sub>1.3</sub></b>	0.449	0.791	0.350	0.582
<b>X<sub>1.4</sub></b>	0.539	0.890	0.436	0.614
<b>X<sub>1.5</sub></b>	0.504	0.873	0.509	0.562
<b>X<sub>2.1</sub></b>	0.793	0.562	0.640	0.442
<b>X<sub>2.2</sub></b>	0.885	0.466	0.683	0.405
<b>X<sub>2.3</sub></b>	0.833	0.511	0.618	0.444
<b>X<sub>2.4</sub></b>	0.770	0.593	0.469	0.485
<b>Y<sub>1.1</sub></b>	0.518	0.383	0.749	0.390
<b>Y<sub>1.2</sub></b>	0.616	0.496	0.791	0.531
<b>Y<sub>1.3</sub></b>	0.620	0.361	0.786	0.278
<b>Y<sub>1.4</sub></b>	0.566	0.455	0.800	0.349
<b>Z<sub>1.1</sub></b>	0.451	0.533	0.417	0.791
<b>Z<sub>1.2</sub></b>	0.362	0.591	0.395	0.719
<b>Z<sub>1.3</sub></b>	0.418	0.472	0.433	0.826
<b>Z<sub>1.4</sub></b>	0.461	0.593	0.337	0.828

Source: Processed Primary Data

The square root of each construct's Average Variance Extracted (AVE) should be greater than the correlations between that construct and every other construct in the model, according to the Fornell-Larcker Criterion. For example, 0.821 for Transformational Leadership, 0.840 for Digital Transformation, 0.782 for Innovative Work Behaviors, and 0.792 for Organizational Performance are diagonal values that show the square root of AVE. The correlations between the constructs are shown by the off-diagonal numbers. Good discriminant validity is suggested by the fact that each diagonal value is greater than the matching correlation values in the same row or column.

Heterotrait-Monotrait (HTMT) Ratio HTMT is an alternative and more stringent method for evaluating discriminant validity. A commonly accepted threshold is 0.85 (some sources allow up to 0.90 in exploratory research). Transformational Leadership – Innovative Work Behaviors (0.899) is within the threshold. Other values, such as Transformational Leadership – Digital Transformation (0.743) and Digital Transformation – Organizational Performance (0.821), are also within the acceptable range.

Cross-loadings help verify whether each indicator loads higher on its respective construct than on other constructs. Ideally, each item's loading on its assigned construct should be higher than its loadings on other constructs. All indicators generally load highest on their respective constructs, supporting discriminant validity.

Table 12 shows the R-squared value and adjusted R-Squared in the constructs. According to Hair et al. (2021), R<sup>2</sup> values can be interpreted as: 0.75 (Substantial), 0.50 (Moderate), and 0.25 (Weak).

Table 12 R-Squared and Adjusted R-Squared

	R-Squared	Adjusted R-Squared
Innovative Work Behaviors	0.562	0.553
Organizational Performance	0.255	0.247

Source: Processed Primary Data

The model moderately explains Innovative Work Behaviors ( $R^2 = 0.562$ ). However, the model has a weaker ability to explain Organizational Performance ( $R^2 = 0.255$ ), suggesting the need to incorporate additional influencing factors. The Adjusted  $R^2$  values confirm that the model is well-specified, but future research may explore other predictors for a more comprehensive explanation of Organizational Performance.

Table 13 Collinearity Statistics Inner Model

	Digital Leadership	Digital Transformation	Innovative Work Behaviors	Organizational Performance
Digital Leadership			1.694	
Digital Transformation			1.694	
Innovative Work Behaviors				1.000
Organizational Performance				

Source: Processed Primary Data

The VIF values in this model are well below 5.0 (Hair, 2021), confirming that collinearity is not a concern in the inner model.

Table 14 shows model fit. According to Hair, (2021), Standardized Root Mean Square Residual (SRMR) measures the difference between the observed and predicted correlation matrices.  $SRMR \leq 0.10$  is considered acceptable fit. Normed Fit Index (NFI) compares the model to a null model (baseline model).  $NFI \geq 0.90$  is considered Good Fit. Exact Model Fit ( $d\_ULS$  and  $d\_G1 / d\_G2$ ) tests whether the model fits exactly in population terms. Lower values indicate better fit.

Table 14 Model Fit

	Saturated Model	Estimated Model
<b>SRMR</b>	0.087	0.137
<b>d_ULS</b>	1.154	2.862
<b>d_G</b>	0.644	0.732
<b>Chi-square</b>	338.081	370.238
<b>NFI</b>	0.703	0.675

Source: Processed Primary Data

The saturated model exhibits a better fit than the estimated model, with SRMR within the acceptable range, but other indices suggest moderate fit quality.

Table 15 The Results of Hypothesis Test

	Path Coefficient	p-Values	Confidence Intervals		F Square
			2.5%	97.5%	
Transformational Leadership → Innovative Work Behaviors	0.667	0.000	0.523	0.837	0.507
Digital Transformation → Innovative Work Behaviors	0.121	0.180	-0.063	0.293	0.038
Innovative Work Behaviors → Organizational Performance	0.505	0.000	0.344	0.658	0.103

Source: Processed Primary Data

Table 15 displays the path coefficients and p values from the SmartPLS hypothesis test. First, with a p-value of 0.000, there is a substantial correlation between innovative work behaviors and transformative leadership. At 0.667, the path coefficient value is positive. It suggests that there is a positive correlation between innovative work behaviors and transformational leadership. Therefore, it is believed that transformational leadership influences innovative work behaviors (H1). Overall, the findings show that innovative work behaviors are positively impacted by transformational leadership. Innovative work behaviors are exhibited by staff members in schools with strong transformational leadership. This study's findings support earlier research by Afsar and Umrani (2020).

Secondly, with a p value of 0.181, there is no significant correlation between innovative work behaviors and digital transformation. The path coefficient value, which is 0.121, is positive. It suggests that innovative work behaviors and digital transformation have a good association. As a result, the hypothesis that digital transformation fosters innovative work practices is disproved. The findings show that innovative work behaviors are positively impacted by digital transformation overall. The findings of this study support earlier research by Theng (2021).

Thirdly, with a p value of 0.000, there is a substantial correlation between innovative work behaviors and organizational performance. The path coefficient, which stands at 0.505, is positive. This indicates that there is a positive correlation between innovative work behaviors and organizational performance. Therefore, it is agreed upon that innovative work practices have an impact on organizational performance (H3). According to the study, organizational performance is impacted by innovative work behavior. It backs up Al-Husseini & Elbeltagi's research findings from 2023.

Table 16 shows Specific Indirect Effect to confirm the mediating role of Innovative Work Behaviors in the relationship between Digital Transformation and Transformational Leadership on Organizational Performance.

Table 16 Specific Indirect Effect

	Path Coefficient	P-Values	Confidence Intervals	
			2.5%	97.5%
Transformational Leadership → Innovative Work Behaviors → Organizational Performance	0.337	0.000	0.222	0.476
Digital Transformation → Innovative Work Behaviors → Organizational Performance	0.064	0.220	-0.030	0.166

Source: Processed Primary Data

As shown in Table 16, innovative work behavior acts as a mediator in the significant association between transformational leadership and organizational performance, with  $p$  values of 0.000. The path value (0.337) is positive. It suggests that innovative work behaviors mediate a beneficial association between transformational leadership and organizational performance. Therefore, H4, which states that innovative work behaviors mitigate the impact of transformational leadership on organizational performance, is accepted. The relationship between transformational leadership and organizational performance is successfully mediated by innovative work behaviors.

Innovative Work Practices mediate the association between Digital Transformation and Organizational Performance, although the result is not statistically significant ( $p = 0.220$ ). The path value (0.064) is positive. It suggests that there is a favorable correlation between organizational performance and digital transformation, as mediated by innovative work behaviors. Thus, H5 that Digital Transformation affects Organizational Performance mediated by Innovative Work Behaviors is rejected. Digital Transformation does not significantly influence Innovative Work Behaviors (H1), nor does it have a meaningful indirect effect on Organizational Performance through Innovative Work Behavior.

This study offers several theoretical implications that contribute to the existing body of knowledge in leadership, digital transformation, and organizational behavior. Firstly, the findings reinforce the pivotal role of transformational leadership in shaping innovative work behaviors, which aligns with prior studies emphasizing leadership as a fundamental driver of employee innovation. This study extends existing theories by confirming that transformational leadership positively influences innovation in the context of vocational education, highlighting the importance of leadership styles tailored to educational institutions.

Secondly, this research provides new insights into the relationship between digital transformation and innovative work behavior. Contrary to conventional assumptions, digital transformation alone does not significantly impact innovative work behaviors, suggesting that technology implementation requires complementary strategies such as training, leadership support, and cultural adaptation. This finding contributes to digital transformation theories by emphasizing that technology adoption must be strategically managed to yield organizational benefits.

Furthermore, the study emphasizes how creative work practices mediate the relationship between organizational performance and transformative leadership. By demonstrating that leadership effectiveness is partly realized through fostering innovation among employees, this research adds depth to the understanding of leadership theories and their practical applications. Future theoretical frameworks should consider the integration of leadership and innovation as interconnected elements rather than isolated constructs.

This study contributes to discussions on organizational performance by linking leadership, innovation, and digital transformation in the vocational education sector. It emphasizes the necessity of holistic approaches that incorporate multiple factors influencing institutional success, urging scholars to explore additional mediating and moderating variables that could further explain these relationships.

The findings of this study have significant managerial implications for vocational school administrators, policymakers, and educational leaders. Firstly, given the strong influence of transformational leadership on innovative work behavior, educational institutions should invest in leadership development programs that enhance the capabilities of school leaders to inspire and support innovation among their staff. Leadership training programs should emphasize skills such as vision setting, strategic decision-making, and fostering a collaborative culture to maximize innovation and institutional success.

Secondly, the study suggests that while digital transformation is essential, its effectiveness depends on how well it is integrated into the organizational culture. School administrators must not only implement new technologies but also provide adequate training and resources to ensure their



successful adoption. Encouraging a digital mindset among educators and staff is crucial to realizing the potential benefits of digital transformation in education.

Thirdly, fostering innovative work behavior requires creating an environment where employees feel empowered to experiment, share ideas, and take calculated risks. Vocational school administrators should establish mechanisms that reward creativity and continuous improvement, such as innovation incubators, cross-functional collaboration initiatives, and recognition programs for employees who contribute innovative solutions.

Finally, policymakers should consider integrating leadership development and digital transformation strategies into national educational frameworks to ensure that vocational schools remain competitive and responsive to the evolving demands of the workforce. Collaboration between educational institutions, government agencies, and industry partners can further enhance the effectiveness of leadership and innovation-driven initiatives in the education sector.

### CONCLUSION

This study emphasizes how transformational leadership is essential for encouraging creative work practices, which improves vocational schools' organizational performance. The findings reveal that while transformational leadership significantly contributes to a culture of innovation, digital transformation alone does not directly influence innovative work behavior. However, when integrated with strong leadership strategies, digital transformation can enhance institutional effectiveness.

The results emphasize the need for educational policymakers and administrators to prioritize leadership development and innovation-driven strategies to optimize digital transformation efforts. By cultivating a work environment that encourages creativity, collaboration, and the strategic use of digital tools, Vocational Schools can significantly enhance their operational efficiency and educational outcomes.

Future research should explore additional moderating and mediating variables that may further explain the relationship between digital transformation, leadership, and organizational performance. Longitudinal studies and qualitative approaches may also provide deeper insights into how educational institutions can effectively leverage leadership and technological advancements to drive sustained growth and innovation.

Overall, this study contributes to the growing body of literature on digital transformation and leadership in educational settings and offers practical recommendations for fostering innovation and improving the performance of Vocational Schools.

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