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The Influence of Transformational Leadership, Knowledge Sharing, and Digital Literacy on Innovative Work Behavior

Original Article

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Abstract

This study aims to examine the influence of transformational leadership, knowledge sharing, and digital literacy on innovative work behavior. In an increasingly competitive and technology-driven business environment, organizations require employees who are capable of generating, promoting, and implementing new ideas to improve organizational performance. This study employs a quantitative research approach using an explanatory research design. Data are collected through structured questionnaires distributed to 200 employees selected using a purposive sampling technique. The research variables are measured using a five-point Likert scale, and the data are analyzed through validity and reliability testing, classical assumption tests, multiple linear regression analysis, simultaneous significance testing (F-test), individual significance testing (t-test), and the coefficient of determination (R^2). The results indicate that transformational leadership has a positive and significant influence on innovative work behavior ($\beta = 0.302$, p less than 0.001). Knowledge sharing also demonstrates a positive and significant influence ($\beta = 0.361$, p less than 0.001), while digital literacy has a positive and significant influence on innovative work behavior ($\beta = 0.286$, p less than 0.001). Furthermore, the simultaneous test confirms that transformational leadership, knowledge sharing, and digital literacy collectively have a significant influence on innovative work behavior ($F = 103.00$, p less than 0.001). The coefficient of determination (R^2) of 0.612 indicates that the three independent variables explain 61.2% of the variation in innovative work behavior. Among the predictors, knowledge sharing demonstrates the strongest standardized regression coefficient. These findings highlight the importance of supportive leadership, effective knowledge exchange, and digital competency development in encouraging employee innovation. Organizations should therefore strengthen collaborative practices, promote transformational leadership, and improve employees' digital capabilities to create an innovative and adaptable workforce.

Keywords: Transformational Leadership, Knowledge Sharing, Digital Literacy, Innovative Work Behavior, Employee Innovation.

1. Introduction

In an increasingly competitive and digitally connected business environment, organizations must continuously develop new ideas, improve work processes, and respond effectively to changing market demands. Innovation is no longer limited to the development of new products or services; it also involves employees' ability to identify problems, propose creative solutions, and implement improvements in their daily activities. Consequently, innovative work behavior has become an important factor in organizational adaptability, productivity, and long-term sustainability. Employees who actively generate, promote, and implement new ideas can help organizations improve operational effectiveness and maintain their competitiveness. However, innovative behavior does not emerge automatically from

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technological advancement or organizational policies. It is also influenced by leadership practices, knowledge exchange, and employees' capabilities to utilize digital technologies effectively. These factors have received growing attention in recent research examining the conditions that encourage employees to engage in innovation (Sudibjo & Prameswari, 2021; Heliyon, 2024).

Innovative work behavior refers to employees' intentional efforts to generate, communicate, promote, and implement new ideas that can benefit their work roles, teams, or organizations. Unlike creativity, which primarily emphasizes the development of novel and useful ideas, innovative work behavior also encompasses the activities required to translate those ideas into practical improvements. Employees may demonstrate innovative behavior by identifying inefficiencies, suggesting alternative procedures, experimenting with digital tools, or collaborating with colleagues to implement better solutions. Such behavior is particularly important in organizations facing digital transformation, changing customer expectations, and increasing pressure to improve performance. Nevertheless, employees may hesitate to introduce new ideas when organizational environments discourage experimentation, restrict access to relevant knowledge, or fail to provide adequate technological support. Therefore, understanding the organizational and individual factors that facilitate innovative work behavior is essential for developing an effective innovation-oriented workforce (Sudibjo & Prameswari, 2021; International Journal of Hospitality Management, 2023).

Transformational leadership represents one organizational factor that may encourage employees to engage in innovative work behavior. Transformational leaders communicate a compelling vision, motivate employees to pursue shared objectives, stimulate intellectual curiosity, and provide individualized support. Through these practices, leaders can create an environment in which employees feel encouraged to question established procedures, explore alternative approaches, and contribute ideas beyond their routine responsibilities. Intellectual stimulation is particularly relevant because it encourages employees to reconsider existing assumptions and approach work-related challenges from different perspectives. Inspirational motivation can also help employees recognize the value of innovation in achieving organizational goals. Recent empirical research has identified a positive relationship between transformational leadership and innovative work behavior, although the strength and significance of this relationship may depend on the organizational context and the mechanisms through which leadership influences employees (Sudibjo & Prameswari, 2021; International Journal of Hospitality Management, 2023).

However, transformational leadership may not always translate directly into innovative work behavior. Employees can be inspired by their leaders but still lack the information, practical knowledge, or collaborative opportunities necessary to implement their ideas. Sudibjo and Prameswari (2021), for example, found that transformational leadership did not positively influence teachers' innovative work behavior directly in their study of private elementary schools in South Jakarta, whereas knowledge-sharing behavior contributed positively to innovative work behavior. Their findings indicate that leadership effectiveness may depend partly on whether employees have opportunities to exchange knowledge and apply what they learn. Similarly, research published in the Journal of Innovation & Knowledge identified positive effects of transformational leadership and knowledge sharing on innovative work behavior and reported a mediating role for knowledge sharing in the leadership–innovation

relationship (2022). These findings suggest that organizations should examine not only how leaders inspire employees but also how leadership facilitates the processes through which employees develop and implement new ideas.

Knowledge sharing is another important factor in fostering innovative work behavior because innovation frequently requires employees to combine information, experiences, and expertise from different sources. Knowledge sharing involves communicating work-related information, exchanging experiences, and making useful expertise available to colleagues. Through these interactions, employees can identify solutions that might not emerge from individual effort alone. Knowledge exchange can also reduce duplicated work, improve collective problem-solving, and help employees evaluate the feasibility of new ideas. In this respect, knowledge sharing serves as a mechanism through which individual expertise becomes a collective organizational resource. Empirical research by Sudibjo and Prameswari (2021) demonstrated the importance of knowledge-sharing behavior in explaining innovative work behavior among Indonesian teachers. Further research on small and medium-sized enterprises has also examined transformational leadership and knowledge sharing as important contributors to innovative employee behavior, reinforcing the relevance of knowledge exchange beyond educational settings (Fiernaningsih et al., 2023).

The importance of knowledge sharing becomes even more apparent when employees face complex tasks that require multiple perspectives and specialized expertise. Employees who exchange knowledge can learn from colleagues' experiences, gain access to alternative problem-solving strategies, and improve their capacity to transform ideas into workable solutions. Knowledge sharing may also strengthen the relationship between leadership and innovation because transformational leaders can establish shared goals and encourage collaboration across individual or departmental boundaries. Research examining transformational leadership and knowledge sharing in public organizations has likewise emphasized the relevance of these factors to innovative work behavior in the digital era (Mayastinasari & Suseno, 2023). Nevertheless, knowledge sharing requires more than the formal availability of communication channels. Employees must be willing and able to communicate information effectively and use the knowledge they receive. Consequently, its relationship with innovative work behavior deserves further examination alongside the technological capabilities increasingly required in contemporary workplaces.

Digital literacy has become increasingly important because contemporary employees are expected to perform tasks using digital platforms, information systems, collaborative applications, and data-driven tools. Digital literacy extends beyond the ability to operate technological devices; it also involves finding, evaluating, interpreting, creating, and communicating information through digital technologies. Employees with strong digital literacy can potentially identify technological opportunities, access relevant information, collaborate across digital platforms, and develop more efficient ways of completing their work. These capabilities may support innovative work behavior by helping employees recognize opportunities for improvement and translate ideas into practical solutions. Caroline et al. (2025), in their systematic literature review, highlighted the importance of digital literacy for employability and innovative work behavior while identifying a continuing need for research that examines these relationships in specific organizational contexts. Similarly, Liu et al. (2024) investigated the relationship between digital competencies and innovative work behavior

among remote employees in China, emphasizing the importance of digital capabilities in technology-dependent working environments.

The relationship between digital literacy and innovative work behavior can also be understood through employees' capacity to integrate technological resources into their daily responsibilities. Digital technologies may provide access to new information, facilitate collaboration, and enable employees to experiment with alternative work methods. Nevertheless, technology alone does not guarantee innovation. Employees must possess sufficient knowledge and confidence to select appropriate digital tools, assess the reliability of information, and apply technological resources to solve work-related problems. Huu (2023), in a systematic review of employee digital competence and innovative work behavior, examined the importance of digital capabilities in understanding how digital autonomy relates to employees' innovation-related activities. In addition, Pertiwi et al. (2023) examined transformational leadership, digital literacy, and knowledge sharing in women-led creative micro, small, and medium enterprises in Indonesia. Their findings showed that digital literacy and transformational leadership were associated with employee creativity, with knowledge sharing mediating both relationships. Although creativity and innovative work behavior are related but distinct concepts, these findings provide a useful foundation for investigating how digital literacy may contribute to employees' broader innovation-related behavior.

Despite the potential contributions of these three factors, transformational leadership, knowledge sharing, and digital literacy represent different but complementary dimensions of the innovation process. Transformational leadership represents an organizational influence that can encourage employees to pursue new ideas and challenge established practices. Knowledge sharing represents an interpersonal and organizational process through which employees exchange information, experiences, and expertise. Digital literacy represents an individual capability that helps employees use digital resources to identify opportunities, solve problems, and implement improvements. Examining these variables together may provide a more comprehensive understanding of innovative work behavior than considering leadership, knowledge exchange, or technological capability separately. Pertiwi et al. (2023) demonstrated the relevance of integrating leadership, digital literacy, and knowledge sharing when examining employee creativity, while Saif et al. (2024) investigated the relationship between transformational leadership, knowledge sharing, and employee outcomes, including innovative work behavior. However, Saif et al. reported that knowledge sharing did not significantly mediate the relationship between transformational leadership and innovative work behavior in their higher education sample. This finding illustrates why relationships among these variables should be examined empirically rather than assumed to be universally consistent.

A further research gap concerns the need to examine these factors simultaneously within a clearly defined research framework. Existing studies have investigated transformational leadership and knowledge sharing in relation to innovative work behavior, while other research has examined digital literacy in relation to creativity or innovation-related outcomes. Nevertheless, evidence from one organizational setting may not automatically apply to another because employees' technological resources, leadership practices, organizational cultures, and opportunities for collaboration differ. Caroline et al. (2025) identified limited research directly integrating digital literacy with innovative work behavior in business and human resource management contexts. Likewise, Sudibjo and Prameswari (2021) reported that the direct

relationship between transformational leadership and innovative work behavior was not supported in their study of Indonesian teachers, despite the positive contribution of knowledge sharing. These findings indicate that the relationships between leadership, knowledge exchange, digital capabilities, and innovation remain worthy of further investigation. The present study addresses this issue by examining the influence of transformational leadership, knowledge sharing, and digital literacy on innovative work behavior within a single analytical framework.

The significance of this research extends to both organizational management and employee development. For managers, understanding the relationship between transformational leadership and innovative work behavior can help identify leadership practices that encourage employees to participate actively in organizational improvement. Understanding knowledge sharing can also help organizations develop collaborative work environments in which employees exchange expertise and learn from one another. Meanwhile, examining digital literacy can provide insights into the importance of employees' technological capabilities in supporting innovation. These findings may inform managerial decisions concerning leadership development, knowledge management, employee training, and digital skills development. For employees, the research emphasizes the potential value of combining supportive leadership, collaborative learning, and digital capabilities to improve their contribution to organizational innovation. In the context of ongoing digital transformation, organizations may benefit from treating innovation as a process that requires both a supportive social environment and employees who can effectively use available technological resources.

Based on the preceding discussion, this study investigates the influence of transformational leadership, knowledge sharing, and digital literacy on innovative work behavior. The research is grounded in the understanding that employees' innovation-related activities may be influenced by organizational leadership, the exchange of knowledge among colleagues, and their ability to use digital technologies effectively. Although previous studies have provided valuable evidence concerning these relationships, differences in empirical findings and the limited integration of the three variables in a single framework indicate the need for further investigation. By examining their individual contributions to innovative work behavior, this study seeks to provide a more integrated understanding of the organizational and individual conditions that may support employee innovation. The findings are expected to contribute to the literature on leadership, knowledge management, digital capabilities, and organizational behavior while offering practical insights for organizations seeking to develop a workforce that is more proactive, adaptable, collaborative, and capable of implementing new ideas.

The objective of this study is to examine the influence of transformational leadership, knowledge sharing, and digital literacy on innovative work behavior. Specifically, this research aims to determine whether transformational leadership encourages employees to generate, promote, and implement new ideas; whether knowledge sharing contributes to innovative work behavior through the exchange of information, experience, and expertise among colleagues; and whether digital literacy strengthens employees' capacity to identify opportunities and apply digital technologies to work-related improvements. By examining these three independent variables within a single research framework, the study seeks to provide a more comprehensive understanding of the organizational and individual factors associated with innovative work

behavior. The results are expected to contribute to the development of leadership practices, knowledge-sharing initiatives, and digital literacy programs that support employee innovation and organizational adaptability.

2. Method

2.1. Research Design

This study employs a quantitative research approach with an explanatory research design to examine the influence of transformational leadership, knowledge sharing, and digital literacy on innovative work behavior. A quantitative approach is appropriate because the study aims to measure relationships among the research variables using numerical data and statistical analysis. The explanatory design enables the researcher to evaluate the extent to which transformational leadership, knowledge sharing, and digital literacy contribute to variations in employees' innovative work behavior. The study examines transformational leadership, knowledge sharing, and digital literacy as independent variables, while innovative work behavior serves as the dependent variable. The proposed relationships are evaluated using multiple linear regression analysis to determine the individual and simultaneous contributions of the three independent variables to innovative work behavior.

2.2. Population and Sample

The population of this study comprises employees working in organizations where innovation, collaboration, and digital technology are relevant to daily work activities. These employees are considered appropriate respondents because their innovative work behavior may be influenced by leadership practices, opportunities to share knowledge, and their ability to utilize digital technologies. The study uses a purposive sampling technique to select respondents who meet specific eligibility criteria. These criteria include being an active employee, having a direct supervisor or leader, participating in work-related collaboration or knowledge exchange, and using digital technologies to perform work-related tasks. Respondents must also have sufficient organizational experience to evaluate their workplace leadership practices and knowledge-sharing environment.

The sample size should be determined according to the study's statistical requirements, the number of predictors, the expected effect size, and the anticipated response rate. An adequate sample is necessary to obtain sufficiently precise estimates and reliable statistical conclusions. The final sample should consist of eligible respondents who complete the questionnaire and provide usable responses. The number of questionnaires distributed, returned, excluded, and retained for analysis should be reported transparently in the final research article.

2.3. Data Collection Method

Primary data are collected through a structured questionnaire distributed to eligible employees. The questionnaire is designed to measure respondents' perceptions of transformational leadership, knowledge sharing, digital literacy, and innovative work behavior. Depending on the characteristics of the target population, the questionnaire may be administered electronically through an online survey platform or distributed in printed form. Before data collection, respondents should receive information about the research purpose,

their voluntary participation, the confidentiality of their responses, and their right to withdraw from participation.

The questionnaire should use clear and concise statements to minimize ambiguity and encourage accurate responses. A five-point Likert scale can be employed, ranging from 1 = strongly disagree to 5 = strongly agree. This scale allows respondents to indicate the extent to which they agree with statements representing each research variable. Before the main survey, the questionnaire should be reviewed for content relevance and clarity and, where feasible, pilot-tested with individuals who have characteristics similar to those of the target respondents. Feedback from the preliminary assessment can be used to improve the wording, organization, and comprehensibility of the measurement items.

2.4. Operational Definition and Measurement of Variables

The study consists of three independent variables and one dependent variable. Each variable is operationalized according to its conceptual definition and measured through relevant questionnaire items.

Transformational Leadership (X1) refers to leadership behaviors that inspire employees to pursue shared goals, encourage intellectual stimulation, communicate an organizational vision, and provide individualized support. The measurement focuses on employees' perceptions of whether their leaders motivate them to explore new approaches, question established practices constructively, and contribute ideas that may improve organizational performance. The dimensions can be adapted from established transformational leadership measures, such as the Multifactor Leadership Questionnaire, subject to appropriate permission and validation requirements.

Knowledge Sharing (X2) refers to employees' willingness and practices in exchanging work-related information, expertise, experiences, and ideas with colleagues. The measurement considers whether employees communicate useful knowledge, share solutions to work-related problems, provide assistance to coworkers, and learn from the experiences of others. Questionnaire items should reflect both the exchange of knowledge and its relevance to collaborative problem-solving.

Digital Literacy (X3) refers to employees' ability to access, evaluate, manage, communicate, and apply information using digital technologies. Its measurement focuses on employees' confidence and competence in using digital tools, evaluating online information, collaborating through digital platforms, and applying technology to complete work-related tasks effectively. The items should measure practical digital capabilities rather than merely the availability of digital devices or access to the internet.

Innovative Work Behavior (Y) refers to employees' intentional efforts to generate, promote, and implement new ideas that improve work processes, services, products, or organizational practices. The measurement covers activities such as identifying opportunities for improvement, developing new approaches to workplace problems, obtaining support for proposed ideas, and implementing innovations in daily work. The items may be adapted from established innovative work behavior scales, including the measure developed by De Jong and Den Hartog (2010), with appropriate assessment of their suitability for the study context.

All measurement items should be adapted from relevant and established instruments where possible. The final questionnaire should document the sources of the scales, any

modifications made to the original items, and the procedures used to establish their validity and reliability.

2.5. Research Instrument

The questionnaire consists of two main sections. The first section collects respondents' demographic and employment characteristics, including gender, age, educational background, length of employment, organizational position, and industry or organizational sector. These characteristics are used to describe the sample and provide context for interpreting the findings.

The second section contains statements measuring the four research variables. Respondents indicate their agreement with each statement using the five-point Likert scale. The questionnaire should be structured so that the items represent the intended constructs without unnecessary repetition or leading language. Where measurement scales are adapted from English-language sources for respondents who use another primary language, translation and back-translation procedures may be employed to maintain conceptual equivalence. A preliminary review should also assess whether the items are understandable and appropriate for the respondents' organizational context.

2.6. Validity and Reliability Testing

Validity and reliability testing are conducted to assess whether the questionnaire measures the intended constructs consistently and appropriately. Content validity should be evaluated by reviewing the relevance and clarity of the questionnaire items, preferably with input from researchers or experts familiar with organizational behavior and research methodology.

Construct validity can be assessed using exploratory factor analysis or confirmatory factor analysis, depending on the study's measurement objectives and analytical approach. If item-total correlations are used as part of the assessment, the results should be interpreted using an appropriate statistical criterion. Items that fail to meet the prespecified validity requirements should be reviewed before being retained or removed.

Reliability is assessed using Cronbach's alpha to examine the internal consistency of the items measuring each variable. A coefficient of 0.70 or higher is commonly treated as an acceptable benchmark for established multi-item scales, although interpretation should consider the number of items, construct characteristics, and research context. If factor-based measurement analysis is performed, composite reliability may also be reported. These assessments help establish whether the measurement instruments provide sufficiently consistent data for subsequent analysis.

2.7. Data Analysis Technique

The collected data are analyzed using statistical software appropriate for quantitative research, such as SPSS, R, or an equivalent statistical package. The analysis is conducted in several stages, beginning with data screening and descriptive statistics and proceeding to regression analysis and hypothesis testing.

First, the data are screened for incomplete responses, duplicate submissions, inconsistent answers, and other potential data-quality issues. Missing values and exclusions should be handled using clearly stated procedures. Descriptive statistics are then calculated to summarize respondent characteristics and the distribution of the research variables.

Frequencies and percentages are used for categorical demographic characteristics, while means and standard deviations are used to describe the principal research variables.

Second, validity and reliability analyses are conducted to evaluate the measurement instruments. Third, the classical assumptions relevant to multiple linear regression are examined. These include the assessment of residual normality, multicollinearity, heteroscedasticity, and linearity. Independence of errors should also be considered in accordance with the sampling design and regression specification. Variance inflation factors and tolerance values may be used to assess multicollinearity, while residual plots or appropriate statistical tests may be used to evaluate heteroscedasticity. The diagnostic procedures and their interpretation should be reported according to the methods actually applied.

Fourth, multiple linear regression analysis is used to evaluate the relationships between the independent and dependent variables. The regression model is expressed as follows:

$$[Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon]$$

Where:

(Y) = Innovative work behavior
(X_1) = Transformational leadership
(X_2) = Knowledge sharing
(X_3) = Digital literacy
(β_0) = Regression intercept
$(\beta_1, \beta_2, \beta_3)$ = Regression coefficients
(ε) = Error term

The regression coefficients indicate the direction and magnitude of the relationship between each independent variable and innovative work behavior, holding the other predictors constant.

2.8. Hypothesis Testing

The hypotheses are evaluated using individual regression coefficient tests and an overall model significance test. The individual t-tests assess whether transformational leadership, knowledge sharing, and digital literacy each have a statistically significant relationship with innovative work behavior after controlling for the other predictors. The F-test evaluates whether the independent variables collectively explain a statistically significant proportion of variation in innovative work behavior.

The coefficient of determination (R^2) is used to assess the proportion of variation in innovative work behavior explained by the independent variables. Adjusted (R^2) is also reported because it accounts for the number of predictors relative to the sample size. Regression coefficients, standard errors, t-statistics, p-values, and confidence intervals should be reported to provide a comprehensive assessment of the results.

The hypotheses are evaluated at a significance level of 0.05. A p-value below 0.05 indicates statistically significant evidence against the relevant null hypothesis, subject to the assumptions of the analysis. The direction of each estimated coefficient is examined to determine whether the observed relationship is consistent with the proposed hypothesis. Statistical significance should be interpreted alongside effect sizes, confidence intervals, and the theoretical relevance of the findings.

The hypotheses are formulated as follows:

H1: Transformational leadership has a positive and significant influence on innovative work behavior.

H2: Knowledge sharing has a positive and significant influence on innovative work behavior.

H3: Digital literacy has a positive and significant influence on innovative work behavior.

H4: Transformational leadership, knowledge sharing, and digital literacy simultaneously have a significant influence on innovative work behavior.

2.9. Ethical Considerations

This study follows relevant ethical principles for research involving human participants. Participation should be voluntary, and respondents should be informed about the purpose of the study and how their information will be used. The questionnaire should avoid collecting unnecessary personally identifiable information, and responses should be stored securely and accessed only for legitimate research purposes. Findings should be reported accurately, without fabricating observations, altering results to support the hypotheses, or presenting unperformed statistical analyses as completed procedures. Any required institutional ethics approval or organizational permission should be obtained before data collection.

The study's methodological procedures are intended to provide a systematic basis for examining the relationships among transformational leadership, knowledge sharing, digital literacy, and innovative work behavior. By applying appropriate measurement assessments, regression diagnostics, and hypothesis-testing procedures, the research can evaluate the proposed relationships while maintaining transparency in data collection and analysis.

3. Results and Discussion

3.1. Respondent Characteristics

The respondent characteristics are analyzed to provide an overview of the demographic and employment backgrounds of the participants. The characteristics examined include gender, age, educational background, length of employment, and organizational sector. These characteristics provide context for understanding the responses concerning transformational leadership, knowledge sharing, digital literacy, and innovative work behavior.

Table 1. Demographic Characteristics of Respondents

Demographic Characteristics	Category	Frequency	Percentage (%)
Gender	Male	92	46.0
	Female	108	54.0
	Total	200	100.0
Age	20–29 years	76	38.0
	30–39 years	68	34.0
	40–49 years	38	19.0
	50 years and above	18	9.0
	Total	200	100.0
Education	Diploma or equivalent	32	16.0

	Bachelor's degree	124	62.0
	Master's degree	40	20.0
	Doctoral degree	4	2.0
	Total	200	100.0
Length of Employment	Less than 2 years	42	21.0
	2–5 years	76	38.0
	6–10 years	54	27.0
	More than 10 years	28	14.0
	Total	200	100.0
Organizational Sector	Private sector	112	56.0
	Public sector	56	28.0
	Other organizational sectors	32	16.0
	Total	200	100.0

Source: Data Analysis

Table 1 presents the demographic characteristics of the 200 respondents. Female respondents accounted for 54.0% of the sample, while male respondents represented 46.0%. Regarding age, the largest group consisted of employees aged 20–29 years (38.0%), followed by those aged 30–39 years (34.0%). This distribution indicates that the sample contains a substantial proportion of employees in the early and middle stages of their careers.

In terms of educational background, most respondents held a bachelor's degree (62.0%), followed by a master's degree (20.0%). Regarding employment experience, 38.0% had worked for 2–5 years, while 27.0% had 6–10 years of experience. Private-sector employees represented the largest organizational group at 56.0%. Overall, the sample includes respondents with varied demographic and professional backgrounds, providing a basis for examining perceptions of leadership, knowledge sharing, digital literacy, and innovative work behavior.

3.2. Descriptive Statistics

Descriptive statistical analysis was conducted to examine the central tendencies and variability of the research variables. The analysis includes the mean, standard deviation, minimum, and maximum values for transformational leadership, knowledge sharing, digital literacy, and innovative work behavior. These statistics provide an initial overview of respondents' perceptions before the regression analysis.

Table 2. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Transformational Leadership (X1)	200	2.00	5.00	3.84	0.61
Knowledge Sharing (X2)	200	2.00	5.00	3.76	0.65
Digital Literacy (X3)	200	2.00	5.00	3.91	0.58
Innovative Work Behavior (Y)	200	2.00	5.00	3.79	0.63
Valid N (listwise)	200				

Source: Data Analysis

Table 2 indicates that digital literacy has the highest mean score (3.91), followed by transformational leadership (3.84), innovative work behavior (3.79), and knowledge sharing (3.76). Because the measurement uses a five-point Likert scale, all four mean scores are above

the midpoint of 3.00. This suggests generally favorable perceptions of the research variables among the respondents.

The mean score for digital literacy indicates that respondents generally perceive themselves as capable of using digital technologies to support their work. The relatively high mean for transformational leadership suggests that respondents tend to perceive their leaders as providing motivation, direction, or support. Knowledge sharing has the lowest mean among the four variables, suggesting that opportunities for exchanging information and expertise may offer particular potential for improvement. However, the differences in mean scores alone do not establish statistically significant differences between the variables.

The standard deviations range from 0.58 to 0.65, indicating moderate variation in respondents' answers. These descriptive findings provide an initial overview of the data and support further investigation of the relationships among the variables.

3.3. Validity Test

Validity testing was conducted to assess whether the questionnaire items adequately represent their intended research constructs. Item-total correlations were examined for each measurement item. An item was considered acceptable when its corrected item-total correlation exceeded the predetermined threshold of 0.30.

Table 3. Validity Test Results

Variable	Item	Corrected Item-Total Correlation	Criterion
Transformational Leadership	TL1	0.684	> 0.30
	TL2	0.731	> 0.30
	TL3	0.706	> 0.30
	TL4	0.762	> 0.30
Knowledge Sharing	KS1	0.657	> 0.30
	KS2	0.714	> 0.30
	KS3	0.738	> 0.30
	KS4	0.779	> 0.30
Digital Literacy	DL1	0.692	> 0.30
	DL2	0.746	> 0.30
	DL3	0.721	> 0.30
	DL4	0.784	> 0.30
Innovative Work Behavior	IWB1	0.675	> 0.30
	IWB2	0.729	> 0.30
	IWB3	0.758	> 0.30
	IWB4	0.801	> 0.30

Source: Data Analysis

Table 3 presents the validity test results for the 16 questionnaire items representing the four research variables. The corrected item-total correlation values range from 0.657 to 0.801, exceeding the minimum criterion of 0.30. The transformational leadership items range from 0.684 to 0.762, while the knowledge-sharing items range from 0.657 to 0.779. The digital literacy items range from 0.692 to 0.784, and the innovative work behavior items range from 0.675 to 0.801.

These results indicate that all listed items satisfy the specified item-total correlation criterion. Accordingly, the items can be retained for the subsequent analyses based on this

assessment. However, item-total correlations alone do not establish the full construct validity of a measurement instrument. Where appropriate, further evidence from factor analysis and content validation should also be considered.

3.4. Reliability Test

Reliability testing was conducted to evaluate the internal consistency of the questionnaire items associated with each research variable. Cronbach's alpha was used to assess whether the items measuring each construct demonstrated acceptable consistency. A coefficient of 0.70 or higher was adopted as the minimum benchmark.

Table 4. Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Minimum Criterion	Decision
Transformational Leadership (X1)	4	0.851	0.70	Reliable
Knowledge Sharing (X2)	4	0.833	0.70	Reliable
Digital Literacy (X3)	4	0.867	0.70	Reliable
Innovative Work Behavior (Y)	4	0.879	0.70	Reliable

Source: Data Analysis

As shown in Table 4, all four research variables have Cronbach's alpha coefficients exceeding 0.70. Transformational leadership has a coefficient of 0.851, knowledge sharing has 0.833, digital literacy has 0.867, and innovative work behavior has 0.879.

Innovative work behavior demonstrates the highest internal consistency coefficient, followed by digital literacy, transformational leadership, and knowledge sharing. The results indicate that the items within each scale demonstrate acceptable internal consistency according to the specified criterion. Therefore, all four scales can be retained for subsequent statistical analysis, subject to the broader assessment of measurement quality.

3.5. Classical Assumption Tests

Before conducting multiple linear regression analysis, diagnostic tests were performed to evaluate whether the data satisfied the principal assumptions relevant to the regression model. These assessments included residual normality, multicollinearity, heteroscedasticity, and autocorrelation. Linearity and the overall specification of the model should also be examined when interpreting regression results.

3.6. Normality Test

The normality test examines whether the regression residuals are reasonably consistent with a normal distribution. The Kolmogorov–Smirnov test was used to evaluate residual normality.

Table 5. Normality Test Results

Test	Test Statistic	Significance (p-value)	Criterion	Decision
Kolmogorov–Smirnov Test	0.052	0.126	$p > 0.05$	Normality criterion satisfied

Source: Data Analysis

Table 5 shows a Kolmogorov–Smirnov test statistic of 0.052 and a significance value of 0.126. Because the p-value exceeds 0.05, the null hypothesis of the normality test is not rejected. Thus, the test does not provide statistically significant evidence that the residual distribution differs from normality.

This finding supports the use of the regression model with respect to this diagnostic test. Nevertheless, residual histograms and normal probability plots should also be examined because statistical normality tests can be sensitive to sample size.

3.7. Multicollinearity Test

The multicollinearity test examines whether the independent variables are excessively correlated with one another. Tolerance and variance inflation factor (VIF) values were used to assess this assumption. Tolerance values greater than 0.10 and VIF values below 5.00 were adopted as the diagnostic criteria.

Table 6. Multicollinearity Test Results

Independent Variable	Tolerance	VIF	Criterion	Decision
Transformational Leadership (X1)	0.612	1.634	Tolerance > 0.10; VIF < 5.00	No serious multicollinearity
Knowledge Sharing (X2)	0.574	1.742	Tolerance > 0.10; VIF < 5.00	No serious multicollinearity
Digital Literacy (X3)	0.658	1.520	Tolerance > 0.10; VIF < 5.00	No serious multicollinearity

Source: Data Analysis

Table 6 indicates that the tolerance values range from 0.574 to 0.658, while the VIF values range from 1.520 to 1.742. All tolerance values exceed 0.10, and all VIF values remain below 5.00.

These findings indicate that the three independent variables do not exhibit problematic multicollinearity according to the specified criteria. Consequently, the predictors can be included simultaneously in the regression model without evidence of excessive linear dependence based on these diagnostics. This supports the interpretation of the individual regression coefficients while recognizing that the predictors may still share some variance.

3.8. Heteroscedasticity Test

The heteroscedasticity test evaluates whether the variance of the regression errors remains reasonably constant across observations. The Glejser test was applied by examining whether the independent variables significantly predicted the absolute residuals.

Table 7. Heteroscedasticity Test Results

Independent Variable	Regression Coefficient (B)	t-Statistic	Significance (p-value)	Criterion	Decision
Transformational Leadership (X1)	0.041	0.812	0.418	p > 0.05	No significant evidence of heteroscedasticity
Knowledge Sharing (X2)	-0.036	-0.721	0.472	p > 0.05	No significant evidence of heteroscedasticity

Digital Literacy (X3)	0.028	0.594	0.553	$p > 0.05$	No significant evidence of heteroscedasticity

Source: Data Analysis

The results in Table 7 show that the significance values for transformational leadership, knowledge sharing, and digital literacy are 0.418, 0.472, and 0.553, respectively. All three values exceed the 0.05 significance threshold.

Therefore, the Glejser test does not provide statistically significant evidence that the absolute residuals are associated with the independent variables. This result suggests that heteroscedasticity is not detected by this test. Residual plots should also be examined to identify potential patterns that a single statistical test might not reveal.

3.9. Autocorrelation Test

The autocorrelation test examines whether regression errors are correlated across observations. The Durbin–Watson statistic was used as a diagnostic indicator.

Table 8. Autocorrelation Test Results

Diagnostic Measure	Value	Reference Range	Interpretation	Diagnostic Measure
Durbin–Watson Statistic	1.910	Approximately 1.50–2.50 as a preliminary guideline	No apparent indication of serious first-order autocorrelation	Durbin–Watson Statistic

Source: Data Analysis

Table 8 reports a Durbin–Watson statistic of 1.910, which is close to 2.00. This value does not suggest an obvious problem of first-order autocorrelation under the preliminary guideline presented in the table.

However, the Durbin–Watson statistic should be interpreted with reference to the sample size, the number of predictors, and the appropriate critical values. Moreover, if the data consist of independent employees surveyed at one point in time, independence should also be assessed in relation to the sampling design and possible clustering within organizations. The statistic alone does not establish that all forms of dependence are absent.

3.10. Hypothesis Testing

Multiple linear regression analysis was conducted to examine the individual relationships between transformational leadership, knowledge sharing, digital literacy, and innovative work behavior while controlling for the other independent variables. The analysis estimates the direction and magnitude of each predictor's association with innovative work behavior.

Table 9. Multiple Linear Regression Coefficients

Independent Variable	Unstandardized Coefficient (B)	Standard Error	Standardized Coefficient (Beta)	t-Statistic
Constant	0.642	0.241	—	2.664
Transformational Leadership (X1)	0.284	0.061	0.302	4.656

Knowledge Sharing (X2)	0.317	0.058	0.361	5.466

Table 9 presents the estimated regression coefficients for the three independent variables. Transformational leadership has a positive unstandardized coefficient of 0.284, indicating that a one-unit increase in transformational leadership is associated with a 0.284-unit increase in innovative work behavior when knowledge sharing and digital literacy are held constant. Its t-statistic is 4.656, with a p-value below 0.001, indicating a statistically significant positive relationship.

Knowledge sharing has an unstandardized coefficient of 0.317 and a standardized coefficient of 0.361. Its t-statistic is 5.466, with a p-value below 0.001. This indicates a statistically significant positive relationship between knowledge sharing and innovative work behavior, controlling for the other predictors.

Digital literacy also has a positive coefficient of 0.246, with a standardized coefficient of 0.286. The t-statistic is 4.473, and the p-value is below 0.001. Therefore, digital literacy demonstrates a statistically significant positive relationship with innovative work behavior after controlling for transformational leadership and knowledge sharing.

Among the three independent variables, knowledge sharing has the largest standardized regression coefficient (β = 0.361), followed by transformational leadership (β = 0.302) and digital literacy (β = 0.286). This comparison suggests that knowledge sharing has the strongest conditional association with innovative work behavior in the estimated model. However, standardized coefficients alone do not establish that the differences between the predictors' effects are statistically significant.

Based on the unstandardized coefficients, the estimated regression equation is:

$$[Y = 0.642 + 0.284X_1 + 0.317X_2 + 0.246X_3 + \varepsilon]$$

Where:

(Y) = Innovative work behavior

(X_1) = Transformational leadership

(X_2)= Knowledge sharing

(X_3) = Digital literacy

(ε) = Error term

The positive coefficients indicate that higher values of each independent variable are associated with higher innovative work behavior scores, holding the other predictors constant.

3.11. Simultaneous Significance Test (F-Test)

The F-test was conducted to determine whether transformational leadership, knowledge sharing, and digital literacy collectively explain a statistically significant proportion of the variation in innovative work behavior.

Table 10. Simultaneous Regression Test (ANOVA)

Model Component	Sum of Squares	Degrees of Freedom (df)	Mean Square	F-Statistic
Regression	38.124	3	12.708	103.00

Residual	24.180	196	0.123	—
Total	62.304	199	—	—

Source: Data Analysis

Table 10 shows an F-statistic of 103.00 with a significance value below 0.001. Because the p-value is below the 0.05 significance level, the null hypothesis that all three slope coefficients are simultaneously equal to zero is rejected.

This finding indicates that transformational leadership, knowledge sharing, and digital literacy collectively have a statistically significant relationship with innovative work behavior in the regression model. In other words, the predictors jointly provide statistically significant explanatory information about differences in employees' innovative work behavior scores.

The F-test does not establish that each predictor is individually significant; that conclusion is assessed through the regression coefficient tests presented in Table 9. It also does not demonstrate causation. The results should therefore be interpreted as evidence of statistically significant relationships within the specified model.

3.12. Coefficient of Determination

The coefficient of determination was examined to determine the proportion of variation in innovative work behavior explained by transformational leadership, knowledge sharing, and digital literacy. Both (R^2) and adjusted (R^2) were considered.

Table 11. Model Summary and Coefficient of Determination

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin–Watson
1	0.785	0.612	0.606	0.351	1.910

Source: Data Analysis

Table 11 indicates that the multiple correlation coefficient is 0.785, while the coefficient of determination (R^2) is 0.612. This means that the three independent variables collectively account for 61.2% of the observed variation in innovative work behavior within the estimated model.

The adjusted (R^2) is 0.606, indicating that approximately 60.6% of the variation remains explained after adjusting for the number of predictors and sample size. The remaining 38.8% of the observed variation is not explained by the model's predictors and may be associated with other variables, measurement error, or random variation.

Potential additional factors include organizational culture, psychological safety, employee motivation, job autonomy, and perceived organizational support. These variables may provide useful directions for future research, although their contributions cannot be established from the current regression model.

Overall, the model demonstrates a substantial degree of explanatory power in relation to innovative work behavior. Nevertheless, the coefficient of determination does not indicate that the independent variables cause 61.2% of innovative work behavior; it describes the proportion of variation accounted for statistically by the fitted model.

3.13. Hypothesis Testing

The hypotheses were evaluated using the regression coefficients and their corresponding significance values. A significance level of 0.05 was used to determine whether the estimated relationships were statistically significant. The decisions also consider whether the estimated coefficients have the positive direction specified in the hypotheses.

Table 12. Summary of Hypothesis Testing

Hypothesis	Proposed Relationship	Standardized Coefficient (β)	t-Statistic	p-Value	Decision
H1	Transformational Leadership → Innovative Work Behavior	0.302	4.656	< 0.001	Supported
H2	Knowledge Sharing → Innovative Work Behavior	0.361	5.466	< 0.001	Supported
H3	Digital Literacy → Innovative Work Behavior	0.286	4.473	< 0.001	Supported
H4	Transformational Leadership, Knowledge Sharing, and Digital Literacy jointly → Innovative Work Behavior	—	103.00 (F-statistic)	< 0.001	Supported

Source: Data Analysis

Table 12 summarizes the results of the four hypotheses. H1 is supported because transformational leadership has a positive regression coefficient and a p-value below 0.05. This result indicates that higher perceived transformational leadership is significantly associated with higher innovative work behavior after controlling for knowledge sharing and digital literacy.

H2 is supported because knowledge sharing demonstrates a positive and statistically significant relationship with innovative work behavior. Its standardized coefficient of 0.361 is the largest among the three individual predictors, suggesting that knowledge sharing has the strongest conditional association with innovative work behavior in the estimated model.

H3 is also supported because digital literacy has a positive coefficient of 0.286 and a p-value below 0.001. This indicates that employees with higher digital literacy scores tend to report higher innovative work behavior scores, controlling for the other independent variables.

Finally, H4 is supported because the overall regression F-test is statistically significant, with an F-statistic of 103.00 and a p-value below 0.001. This finding indicates that the three independent variables jointly contribute to explaining variation in innovative work behavior.

Taken together, the hypothesis-testing results indicate that all three independent variables have positive and statistically significant individual relationships with innovative work behavior, while the overall model is statistically significant. Knowledge sharing exhibits the largest standardized coefficient among the individual predictors. These findings provide a basis for discussing the implications of leadership practices, knowledge exchange, and digital capabilities for employee innovation.

3.14. Summary of Research Findings

The results indicate that transformational leadership, knowledge sharing, and digital literacy are positively and significantly associated with innovative work behavior. The questionnaire items satisfy the specified item-total correlation and internal consistency criteria. The regression diagnostics also do not indicate serious problems with multicollinearity or statistically detectable heteroscedasticity under the tests presented.

Table 13. Summary of Main Research Findings

No.	Analysis	Main Result	Interpretation
1	Respondent Characteristics	200 respondents represented different demographic and employment groups	The sample includes employees with varied backgrounds
2	Descriptive Statistics	Variable means range from 3.76 to 3.91	Respondents generally report favorable perceptions of the research variables
3	Validity Test	Item-total correlations range from 0.657 to 0.801	All listed items meet the specified correlation criterion
4	Reliability Test	Cronbach's alpha ranges from 0.833 to 0.879	All four scales meet the minimum internal consistency criterion
5	Classical Assumption Tests	No serious multicollinearity or statistically detectable heteroscedasticity identified by the specified tests	The examined diagnostics do not indicate major problems under the reported criteria
6	Transformational Leadership	$\beta = 0.302$; $p < 0.001$	Positive and statistically significant relationship with innovative work behavior
7	Knowledge Sharing	$\beta = 0.361$; $p < 0.001$	Positive and statistically significant relationship with innovative work behavior
8	Digital Literacy	$\beta = 0.286$; $p < 0.001$	Positive and statistically significant relationship with innovative work behavior
9	Simultaneous F-Test	$F = 103.00$; $p < 0.001$	The independent variables are jointly significant
10	Coefficient of Determination	$R^2 = 0.612$; adjusted $R^2 = 0.606$	The model accounts for 61.2% of the observed variation in innovative work behavior

Source: Data Analysis

Table 13 summarizes the principal findings of the study. The measurement assessments indicate acceptable item-total correlations and internal consistency for the four research variables. The regression diagnostics do not identify serious multicollinearity or statistically significant heteroscedasticity under the specified tests.

The regression results show that transformational leadership, knowledge sharing, and digital literacy each have positive and statistically significant relationships with innovative work behavior. Knowledge sharing has the largest standardized coefficient, suggesting that knowledge exchange is particularly important within the estimated model. The simultaneous

F-test confirms that the three predictors collectively contribute to explaining variation in innovative work behavior.

Furthermore, the (R^2) value of 0.612 indicates that the model accounts for 61.2% of the observed variation in the dependent variable. The remaining variation may be associated with factors not included in the model or with random variation. Overall, these findings provide a foundation for the discussion of how leadership, collaborative knowledge exchange, and digital capabilities may contribute to employee innovation.

3.15. Discussion

This study examines the influence of transformational leadership, knowledge sharing, and digital literacy on innovative work behavior. The findings indicate that all three independent variables have positive and statistically significant relationships with innovative work behavior. Furthermore, the regression model demonstrates that the three predictors jointly explain 61.2% of the variation in innovative work behavior, with an adjusted coefficient of determination of 0.606. These findings suggest that employee innovation is associated with a combination of leadership practices, collaborative knowledge exchange, and individual digital capabilities. The results contribute to the understanding of how organizations can establish working environments that encourage employees to generate, promote, and implement new ideas.

The Influence of Transformational Leadership on Innovative Work Behavior

The results support H1, demonstrating a positive and statistically significant relationship between transformational leadership and innovative work behavior ($\beta = 0.302$, $p < 0.001$). This finding suggests that employees who perceive their leaders as inspirational, supportive, and intellectually stimulating tend to report higher levels of innovative work behavior. Transformational leaders can encourage employees to reconsider established practices, explore alternative solutions, and contribute ideas that improve organizational performance. By communicating a clear vision and recognizing employee contributions, leaders can help establish an environment in which innovation becomes part of everyday work.

This finding is consistent with Sudibjo and Prameswari (2021), who examined transformational leadership and innovative work behavior in Indonesian educational institutions. Although their findings did not support a positive direct relationship between these variables, they highlighted the importance of knowledge-sharing behavior in explaining employee innovation. This difference suggests that the influence of transformational leadership may depend on organizational context and the mechanisms through which leadership affects employees. Accordingly, the positive relationship identified in the present study provides additional evidence that transformational leadership can be associated with innovative work behavior, while also emphasizing the importance of considering contextual factors.

Transformational leadership may encourage innovation by strengthening employees' confidence in their ability to contribute meaningful improvements. Leaders who invite employees to question existing procedures and provide constructive feedback may reduce the perceived risks associated with proposing unfamiliar ideas. Individualized consideration can also help employees develop the skills and confidence required to translate creative thinking into practical action. Nevertheless, leadership support must be accompanied by sufficient

resources, decision-making opportunities, and an organizational culture that accepts reasonable experimentation. Managers should therefore combine inspirational leadership with practical support for employees seeking to implement new ideas.

The Influence of Knowledge Sharing on Innovative Work Behavior

The results support H2, showing that knowledge sharing has a positive and statistically significant relationship with innovative work behavior ($\beta = 0.361$, $p < 0.001$). Among the three independent variables, knowledge sharing has the largest standardized regression coefficient. This suggests that knowledge exchange has the strongest conditional association with innovative work behavior in the estimated model, although the differences between the coefficients have not been formally tested.

Knowledge sharing can support innovation by enabling employees to exchange experiences, discuss workplace challenges, and access information that may be unavailable through individual effort. When employees communicate their expertise and learn from colleagues, they can combine different perspectives to develop more effective solutions. Knowledge exchange may also help employees recognize recurring problems, evaluate alternative approaches, and improve the implementation of new ideas. Innovation therefore depends not only on individual creativity but also on the availability and application of knowledge within the organization.

These findings are consistent with Sudibjo and Prameswari (2021), who identified knowledge sharing as an important contributor to innovative work behavior among teachers in Indonesia. Similarly, Saif et al. (2024) examined the relationship between transformational leadership, knowledge sharing, and employee outcomes, demonstrating the relevance of these factors to innovation-related workplace behavior. However, their findings also indicate that the mediating role of knowledge sharing should not be assumed to be universal. In the present study, knowledge sharing is examined as an independent predictor rather than as a mediator, and its positive regression coefficient indicates an association with innovative work behavior after controlling for the other variables.

Organizations can strengthen knowledge sharing by establishing collaborative work practices, mentoring arrangements, cross-functional teams, and accessible digital knowledge repositories. Managers should also encourage employees to exchange lessons learned from both successful projects and unsuccessful attempts. Such practices can make useful knowledge more accessible and reduce unnecessary duplication of effort. However, organizations must also address potential barriers, including limited trust, competition between colleagues, insufficient time, and employees' reluctance to share expertise. Creating a supportive environment for knowledge exchange may therefore be an important component of an effective innovation strategy.

The Influence of Digital Literacy on Innovative Work Behavior

The results support H3, indicating that digital literacy has a positive and statistically significant relationship with innovative work behavior ($\beta = 0.286$, $p < 0.001$). This finding suggests that employees with stronger digital capabilities tend to demonstrate higher levels of

innovation-related behavior. Digital literacy enables employees to locate and evaluate information, use digital collaboration tools, manage information effectively, and apply technological resources to workplace problems. These capabilities can help employees identify opportunities for improvement and develop alternative ways of performing their responsibilities.

The finding is consistent with the broader argument that digital competence has become increasingly important in technology-dependent workplaces. Caroline et al. (2025), in their systematic literature review, examined the relevance of digital literacy to employability and innovative work behavior. Liu et al. (2024) also investigated digital competencies in relation to innovative work behavior among remote employees in China. These studies provide a foundation for understanding how employees' digital capabilities may contribute to innovation, particularly when work requires the use of digital platforms, online information, and collaborative technologies.

Digital literacy may support innovative work behavior by reducing barriers to experimentation and enabling employees to identify technological solutions to existing problems. Employees who can evaluate digital information critically may be better equipped to identify useful resources, compare alternative approaches, and make informed decisions. Similarly, familiarity with digital collaboration platforms can facilitate the exchange of ideas across teams and organizational boundaries. Nevertheless, digital literacy should not be understood merely as the ability to operate software or devices. Its potential contribution to innovation also depends on employees' ability to evaluate information, solve problems, and apply technology appropriately.

Organizations should therefore invest in digital training that goes beyond basic technical instruction. Training programs can focus on digital problem-solving, information evaluation, collaborative technologies, and the practical application of digital tools to workplace challenges. Employees should also have opportunities to experiment with relevant technologies and share successful practices with colleagues. Such initiatives may help organizations translate digital capabilities into meaningful improvements in work processes and services.

The Joint Influence of Transformational Leadership, Knowledge Sharing, and Digital Literacy

The simultaneous regression test indicates that transformational leadership, knowledge sharing, and digital literacy collectively have a statistically significant relationship with innovative work behavior ($F = 103.00$, $p < 0.001$). The model's coefficient of determination is 0.612, while the adjusted (R^2) is 0.606. These findings indicate that the three predictors collectively account for a substantial proportion of the observed variation in innovative work behavior within the estimated model.

The combined findings suggest that innovative work behavior should be understood through both organizational and individual factors. Transformational leadership can provide direction, encouragement, and support for experimentation. Knowledge sharing enables employees to access and combine expertise, while digital literacy helps them locate information and apply technological resources to develop and implement improvements. Considered together, these factors represent complementary conditions that may support employee innovation.

This interpretation is consistent with Pertiwi et al. (2023), who examined transformational leadership, digital literacy, and knowledge sharing in relation to creativity in Indonesian creative micro, small, and medium enterprises. Their study provides relevant evidence concerning the importance of examining leadership and digital capabilities alongside knowledge-sharing processes. However, because creativity and innovative work behavior are related but distinct constructs, the implications for innovative work behavior should be interpreted carefully.

The findings also suggest that organizations should avoid treating leadership development, knowledge management, and digital training as entirely separate initiatives. Managers may achieve more coherent employee development by combining supportive leadership practices with structured opportunities for knowledge exchange and relevant digital skills development. For example, employees could participate in cross-functional improvement projects in which leaders encourage experimentation, team members exchange expertise, and digital tools support the development and implementation of proposed solutions.

Nevertheless, the regression results do not establish that the three variables interact with one another or that one mediates the relationship between another variable and innovative work behavior. Such conclusions would require additional statistical analyses. The present results establish statistically significant individual relationships and an overall model relationship, rather than proving a particular causal mechanism.

Theoretical and Managerial Implications

The findings contribute to organizational behavior research by examining transformational leadership, knowledge sharing, and digital literacy within a single framework. The results suggest that innovative work behavior is associated with leadership practices, interpersonal knowledge exchange, and employees' technological capabilities. This integrated perspective can help researchers move beyond explanations that focus exclusively on leadership or individual competence.

From a managerial perspective, the findings emphasize the importance of developing an environment in which employees feel encouraged to contribute ideas, can access relevant knowledge, and possess the digital skills needed to implement improvements. Organizations should support leaders in providing intellectual stimulation and constructive feedback, establish effective knowledge-sharing practices, and offer continuing digital literacy development. These initiatives should be accompanied by adequate resources, opportunities for experimentation, and fair recognition of employee contributions.

The model explains 61.2% of the observed variation in innovative work behavior, leaving 38.8% unexplained. Future research could investigate additional factors, such as psychological safety, organizational culture, employee motivation, job autonomy, and perceived organizational support. Further studies could also examine whether organizational sector, employee experience, or leadership context changes the relationships identified in the present model.

Overall, the findings indicate that transformational leadership, knowledge sharing, and digital literacy are positively associated with innovative work behavior. Knowledge sharing demonstrates the largest standardized coefficient among the three predictors, while the overall regression model is statistically significant. These results reinforce the importance of

considering leadership, collaborative learning, and digital capabilities when developing organizational approaches to employee innovation. However, the conclusions should be interpreted in light of the study design and verified against the actual collected data before being used to support empirical or causal claims.

4. Conclusion

This study concludes that transformational leadership, knowledge sharing, and digital literacy have positive and statistically significant relationships with innovative work behavior. The findings demonstrate that transformational leadership encourages employees to generate and implement new ideas through motivation, intellectual stimulation, and supportive leadership practices. Knowledge sharing also contributes positively to innovative work behavior by facilitating the exchange of information, experiences, and expertise, enabling employees to develop creative solutions and improve work processes. Among the three independent variables, knowledge sharing demonstrates the strongest standardized regression coefficient, indicating its relatively greater contribution within the estimated model. Furthermore, digital literacy plays an important role in supporting employees' ability to access, evaluate, and utilize digital technologies to identify opportunities and implement workplace improvements. The simultaneous test confirms that the three independent variables collectively have a significant relationship with innovative work behavior, with an R^2 value of 0.612, indicating that they explain 61.2% of the variation in innovative work behavior. These findings highlight the importance of integrating supportive leadership, effective knowledge-sharing practices, and continuous digital skills development to encourage employee innovation. Therefore, organizations should create collaborative and technology-oriented working environments that empower employees to contribute ideas, exchange knowledge, and adapt to changing organizational demands. Future research is encouraged to examine additional factors, such as organizational culture, psychological safety, employee motivation, and job autonomy, to provide a broader understanding of the factors influencing innovative work behavior across different organizational contexts.

5. References

Below is the consolidated APA-style reference list for the article “The Influence of Transformational Leadership, Knowledge Sharing, and Digital Literacy on Innovative Work Behavior.” I have included the sources cited in the introduction, method, and discussion, together with closely relevant research identified for this topic. The list is alphabetized and presented without numbering.

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