

THE INFLUENCE OF DIGITAL LEADERSHIP ON INNOVATIVE WORK BEHAVIOR WITH THE ROLE OF WORK ENGAGEMENT AND SELF-EFFICACY AS MEDIATORS AMONG EMPLOYEES OF STATE-OWNED BANKS IN WEST JAVA

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Abstract

The rapid digital transformation in the banking sector demands employees who are capable of generating and implementing innovative ideas, yet the mechanism through which digital leadership drives innovative work behavior remains inconsistent in existing literature. This study aims to examine the influence of digital leadership on innovative work behavior with work engagement and self-efficacy as mediating variables among state-owned bank employees in the West Java region. A quantitative approach was employed with data collected through questionnaires distributed to 96 respondents selected via purposive sampling. Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The results are expected to demonstrate that digital leadership positively influences innovative work behavior, work engagement, and self-efficacy, while both work engagement and self-efficacy positively influence innovative work behavior and simultaneously mediate the relationship between digital leadership and innovative work behavior. These findings contribute theoretically by enriching the understanding of psychological mechanisms linking digital leadership to employee innovation within the digital transformation context of Indonesian state-owned banking. Practically, the findings provide strategic insights for banking management to develop digital leadership approaches that actively foster employee work engagement and self-efficacy as foundational drivers of sustainable innovative behavior.

Keywords: Digital Leadership, Innovative Work Behavior, Work Engagement, Self-Efficacy, State-Owned Bank

INTRODUCTION

The rapid transformation of digital technology demands that state-owned banking institutions continue to innovate in order to maintain their competitiveness in the industry. In such conditions, employees' ability to generate and implement new ideas, known as innovative work behavior, becomes one of the important factors supporting the organization's success (Bindel Sibassaha et al., 2025). Innovative work behavior is an individual behavior that encompasses the process of generating, developing, and proactively applying new ideas, methods, or solutions in the workplace (Z. M. E. Siregar et al., 2019). Various studies show that this behavior plays a crucial role in improving organizational performance while simultaneously creating sustainable competitive advantages (Jankelová et al., 2021; Saif et al., 2024). The importance of innovative behavior is increasingly evident in the state-owned banking sector, which is currently expanding its digital services. By the end of 2025, the BRImo application recorded 45.9 million active users, Livin' by Mandiri reached 37.2 million users, and wondr by BNI experienced a growth of 128.30% with a total of 12.1 million users (Anggela, 2026). The data shows that the success of digital transformation does not only depend on technology but also on the capacity of human resources to generate innovation.

One of the factors considered capable of driving the emergence of innovative work behavior is digital leadership, which is the ability of leaders to utilize digital technology and empower employees to support innovation during the digital transformation process (Zeike et al., 2019). Several studies have found that digital leadership has a positive impact on innovative work behavior (Gao & Gao, 2024; Sagbas et al., 2023; Zhu et al., 2025). However, several other studies indicate that this relationship does not always occur directly or significantly (Hadi et al., 2024; Hastiti et al., 2025; Nugroho et al., 2025). These differing findings indicate the presence of certain psychological factors that play a role in explaining the mechanism of the relationship between digital leadership and innovative work behavior. Therefore, this study proposes work engagement and self-efficacy as mediating variables. Work engagement describes the level of involvement, energy, and dedication an individual has toward their work, which can encourage proactive behavior and creativity in the workplace (Kodden, 2020; Schaufeli et al., 2006). Meanwhile, self-efficacy refers to an individual's belief in their ability to complete tasks and face work challenges, thereby enhancing their courage to take initiative and generate innovation (Bandura, A., & Wessels, 1997; Uppathampracha & Liu, 2022).

Based on this gap, this study aims to analyze the influence of digital leadership on innovative work behavior thru the mediating roles of work engagement and self-efficacy among BUMN banking employees in the West Java region. The research results are expected to provide theoretical contributions in enriching the study of psychological mechanisms that bridge the relationship between digital leadership and employees' innovative work behavior. In addition, practically, this research can provide input for the management of state-owned banking companies in developing digital leadership strategies that can enhance employee work engagement and self-efficacy to support the creation of sustainable innovation.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

The influence of digital leadership on innovative work behavior can be explained thru Social Exchange Theory, which emphasizes reciprocal work relationships, where leader support is reciprocated thru positive employee behavior (Blau, 1964; Cropanzano & Mitchell, 2005). Leaders with high digital competence have been proven to create a conducive atmosphere for employees to innovate (Zhu et al., 2025), and a positive perception of the leader's digital competence encourages employees to display innovative work behavior (Erhan et al., 2022). Thus, the better the implementation of digital leadership, the higher the tendency for employees to exhibit innovative work behavior, leading to the formulation of

H1: Digital leadership has a positive and significant effect on employees' innovative work behavior.

Digital leadership also influences work engagement thru its role as a provider of job resources in the form of technological support, clear guidance, and motivation in facing digital transformation, which reduces job demands and strengthens employees' intrinsic motivation (Schaufeli & Bakker, 2004). Research by Yang et al. (2024) reveals that digital leadership encourages active employee participation in the digitalization process, while Li et al. (2026) demonstrate that digital leadership strengthens work engagement both directly and thru empowerment and affective commitment. Thus, the better the implementation of digital leadership, the higher the level of employee work engagement, leading to the formulation

H2: Digital leadership has a positive and significant effect on employee work engagement.

The relationship between digital leadership and self-efficacy can be understood thru Social Cognitive Theory (Bandura, 1986), which emphasizes that a supportive work environment shapes employees' self-confidence thru training, feedback, and space for technology exploration as a source of mastery experience (Bandura, 1997). Digital leadership has been proven to have a positive impact on self-efficacy thru technological support that enhances employees' confidence in facing digital challenges (Li et al., 2026; Wang et al., 2025). This means that the better the

implementation of digital leadership, the higher the employees self-efficacy, ultimately leading to the formulation of

H3: Digital leadership has a positive and significant effect on employees' self-efficacy.

The influence of work engagement on innovative work behavior is based on the Job Demands-Resources Model, which explains that employees with high work engagement tend to optimally devote their energy and enthusiasm, thereby fostering intrinsic motivation to seek new ways of working and implementing innovative solutions (Schaufeli & Bakker, 2004). Barkat et al., (2024) confirmed the positive influence of work engagement on innovative work behavior, although Vu et al. (2025) found insignificant results because engaged employees tend to focus their energy on completing existing tasks. Hence, the higher the work engagement of employees, the greater the tendency for innovative work behavior to emerge, which led to the formulation of

H4: Work engagement has a positive and significant effect on employees' innovative work behavior.

Self-efficacy influences innovative work behavior thru cognitive mechanisms explained in the Social Cognitive Theory (Bandura, 1986), where individuals with high self-efficacy tend to set challenging goals, view obstacles as something that can be overcome, and persist in the face of failure, thereby encouraging the emergence of innovative ideas. Self-efficacy has been shown to have a positive relationship with innovative work behavior (Uppathampracha & Liu, 2022), and serves as a key psychological mechanism that drives individuals to act innovatively (Ji & Yoon, 2021). Therefore, the higher the employees' self-efficacy, the greater the tendency to exhibit innovative work behavior, leading to the hypothesis of

H5: Self-efficacy has a positive and significant effect on employees' innovative work behavior.

Work engagement is suspected to mediate the relationship between digital leadership and innovative work behavior, where digital leadership, as a form of organizational support, encourages employees to increase work engagement as a reciprocal response, which then creates psychological conditions that drive creativity and innovation (Blau, 1964; Cropanzano & Mitchell, 2005). Nugroho et al. (2025) proved that digital leadership has a positive effect on work engagement, which in turn enhances innovative work behavior, and similar findings were also observed in the context of teachers in Indonesia (J. Siregar et al., 2025). So, work engagement becomes the mechanism that channels the influence of digital leadership on innovative work behavior, consequently contributing of

H6: Work engagement mediates the positive influence of digital leadership on employee innovation.

Self-efficacy is suspected to mediate the relationship between digital leadership and innovative work behavior, where digital leadership builds employees' self-confidence thru the provision of training, constructive feedback, and exploration space that strengthens individuals' confidence in their own capabilities (Bandura, 1997), which in turn encourages the courage to innovate. Zhu et al. (2025) found that digital self-efficacy mediates the relationship between digital leadership and innovative behavior, while Uppathampracha & Liu (2022) showed that self-efficacy together with work engagement forms a mediation in the relationship between leadership and innovative behavior. Consequently, self-efficacy functions as a psychological mechanism that strengthens the influence of digital leadership on innovative work behavior, contributing to the formulation of

H7: Self-efficacy mediates the positive influence of digital leadership on employees' innovative work behavior.

RESEARCH METHODS

This research uses a quantitative approach to test the hypothesis regarding the influence of digital leadership on innovative work behavior with work engagement and self-efficacy as mediating variables, conducted from May to June 2026 in the BUMN banking environment in the

West Java region. The research population consists of all employees of state-owned banking institutions in the West Java region, with an unknown exact number. Therefore, the sampling was conducted using purposive sampling techniques with Cochran's formula at a 10% error level, resulting in a minimum sample of 96 respondents, with the criteria of employees who have worked for at least six months and have a direct supervisor in the organizational structure. Data collection was carried out thru the direct distribution of questionnaires to respondents, and the collected data were analyzed using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) method, which includes outer model evaluation thru instrument validity and reliability testing, as well as inner model evaluation to test the strength of relationships between variables and research hypotheses, including direct effects and mediation effects.

The research instrument was developed based on the adaptation of scales that have been empirically validated, namely the digital leadership scale from Zeike et al. (2019), the work engagement scale from Utrecht Work Engagement Scale (UWES-9 short questionnaire) by Schaufeli et al. (2006), the self-efficacy scale from New General Self-Efficacy Scale by Chen et al. (2001), and the innovative work behavior scale from Janssen (2000), all measured using a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

RESULT

Figure 1 Data Analysis Results Using SmartPLS

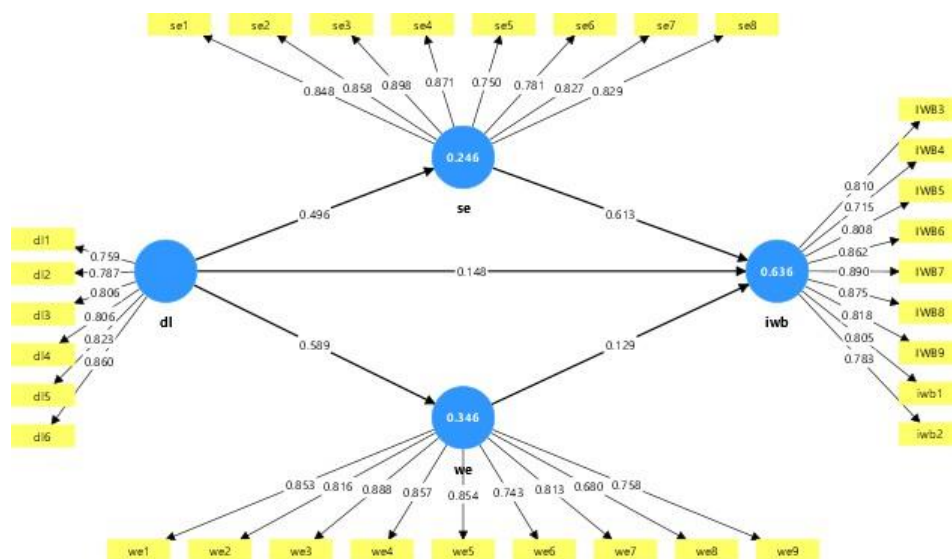


Table 1 Convergent Validity Test Results

	DL	IWB	SE	WE
DL1	0.759			
DL2	0.787			
DL3	0.806			
DL4	0.806			
DL5	0.823			

DL6	0.860	
IWB1	0.805	
IWB2	0.783	
IWB3	0.810	
IWB4	0.715	
IWB5	0.808	
IWB6	0.862	
IWB7	0.890	
IWB8	0.875	
IWB9	0.818	
SE1		0.848
SE2		0.858
SE3		0.898
SE4		0.871
SE5		0.750
SE6		0.781
SE7		0.827
SE8		0.829
WE1		0.853
WE2		0.816
WE3		0.888
WE4		0.857
WE5		0.854
WE6		0.743
WE7		0.813
WE8		0.680
WE9		0.758

Table 2 Test Results for Average Variance Extracted

	Average variance extracted (AVE)	Keterangan
DL	0.652	Valid

IWB	0.672	Valid
SE	0.696	Valid
WE	0.655	Valid

In this study, one of the items under the absorption indicator of the work engagement variable did not meet the criteria for validity as defined by (Hair et al., 2019), who recommend an outer loading value of ≥ 0.7 . However, another researcher, Hulland (1999), states that an outer loading above 0.50 is still acceptable, particularly in social science research or exploratory studies. Meanwhile, the overall Average Variance Extracted (AVE) values for each variable were greater than 0.5. Thus, all variables in this model were deemed valid.

Table 3 Discriminant Validity Test

	DL	IWB	SE	WE
DL				
IWB	0.565			
SE	0.535	0.823		
WE	0.637	0.676	0.730	

The results of the discriminant validity test using the Heterotrait-Monotrait (HTMT) ratio show that all HTMT values between constructs are below the 0.85 threshold. All HTMT values below 0.85 indicate that each construct in this research model has been shown to be conceptually distinct and meets the criteria for discriminant validity.

Table 4 Reliability Test Result

	Cronbach's alpha	rho_a	rho_c	AVE
DL	0.893	0.899	0.918	0.652
IWB	0.939	0.942	0.948	0.672
SE	0.937	0.938	0.948	0.696
WE	0.933	0.935	0.944	0.655

The test results show that the Cronbach's Alpha (rho_a) and Composite Reliability (rho_c) values for all variables were above 0.70, indicating good internal consistency and adequate construct validity. The Average Variance Extracted (AVE) values for all variables were also above 0.50, thus meeting the criteria for convergent validity. Consequently, all instruments in this study were deemed reliable and convergent valid, making them suitable for further analysis.

Table 5 Effect Size Test Results

	IWB	SE	WE
DL	0.039	0.327	0.530
SE	0.535		
WE	0.021		

The results of the effect size (f^2) test indicate that digital leadership has a small effect on innovative work behavior ($f^2 = 0.039$), but has a moderate effect on self-efficacy ($f^2 = 0.327$) and a large effect on work engagement ($f^2 = 0.530$). Furthermore, self-efficacy has a large effect on innovative work behavior ($f^2 = 0.535$), whereas work engagement has only a very small effect ($f^2 = 0.021$). These findings indicate that digital leadership plays a greater role in enhancing self-efficacy and work engagement than in directly fostering innovative work behavior, with self-efficacy* being the strongest predictor of innovative work behavior.

Table 6 Results of the Coefficient of Determination (R^2) Test

	R-square	R-square adjusted
IWB	0.636	0.625
SE	0.246	0.239
WE	0.346	0.340

The test results show that innovative work behavior has an R-squared value of 0.636, meaning that 63.6% of its variance can be explained by the model, indicating strong predictive power. Meanwhile, self-efficacy and work engagement have R-squared values of 0.246 and 0.346, respectively, indicating weak to moderate predictive power. Furthermore, the adjusted R-squared values, which are not significantly different from the R-squared values for the three constructs, indicate that the model does not suffer from overfitting.

Table 7 Hypothesis Test Results

Hipotesis	P values
DL → IWB	0.088
DL → SE	0.000
DL → WE	0.000
SE → IWB	0.000
WE → IWB	0.157
DL → WE → IWB	0.162
DL → SE → IWB	0.000

The results of the hypothesis testing show that, of the seven pathways tested, four were found to be significant and three were found to be insignificant ($p > 0.05$). Digital leadership did not have a significant direct effect on innovative work behavior ($p = 0.088$), but it had a positive and significant effect on work engagement ($p = 0.000$) and self-efficacy ($p = 0.000$). Meanwhile,

work engagement was not found to have a significant effect on innovative work behavior ($p = 0.157$), unlike self-efficacy, which had a positive and significant effect on innovative work behavior ($p = 0.000$). In the mediation analysis, work engagement was not found to mediate the effect of digital leadership on innovative work behavior ($p = 0.162$), whereas self-efficacy was found to mediate this effect positively and significantly ($p = 0.000$). These findings indicate that the effect of digital leadership on innovative work behavior operates entirely through self-efficacy as the primary psychological mechanism (full mediation), rather than through a direct path or through work engagement.

DISCUSSION

The findings indicate that digital leadership did not directly influence innovative work behavior, despite significantly enhancing both work engagement and self-efficacy. This result contrasts with the prediction of Social Exchange Theory (Blau, 1964) that supportive leadership is reciprocated through positive employee behavior. Instead, the findings suggest that digital leadership contributes to innovation through indirect psychological mechanisms rather than direct behavioral change. In the state-owned banking context, leaders appeared to prioritize technology adoption, training, and digital implementation over encouraging experimentation and idea generation, consistent with Ren et al. (2025)

Consistent with Job Demands-Resources Theory (Bakker & Demerouti, 2007), digital leadership significantly increased work engagement by providing technological support, empowerment, and clear communication during digital transformation. At the same time, digital leadership also strengthened employees' self-efficacy, supporting Social Cognitive Theory (Bandura, 1997). Through technical guidance, role modeling, and continuous encouragement, leaders enhanced employees' confidence in adapting to digital changes, in line with previous studies (Li et al., 2024; Li et al., 2026; Wang et al., 2025; Zhu et al., 2025). However, work engagement was not found to significantly predict innovative work behavior. Although engaged employees demonstrated commitment to their work, this engagement appeared to be directed toward maintaining operational performance and compliance rather than pursuing risky or novel ideas. This finding supports Vu et al. (2025) and the meta-analysis of Sari et al. (2021), suggesting that the relationship between work engagement and innovation is context-dependent, particularly in highly regulated organizations such as state-owned banks.

In contrast, self-efficacy emerged as a significant predictor of innovative work behavior and exerted a stronger influence than work engagement. Consistent with Social Cognitive Theory, employees who believed in their capabilities were more willing to generate, promote, and implement new ideas despite organizational constraints. This finding reinforces previous evidence from banking and organizational settings that identifies self-efficacy as a key psychological driver of innovation (Ji & Yoon, 2021; Uppathampracha & Liu, 2022; Gkontelos et al., 2023). The mediation analysis further confirmed these patterns. Work engagement did not mediate the relationship between digital leadership and innovative work behavior, indicating that increased engagement alone was insufficient to translate leadership support into innovation. By contrast, self-efficacy significantly mediated this relationship, suggesting that digital leadership stimulates innovation primarily by strengthening employees' confidence in their ability to navigate digital transformation and implement new ideas. This finding is consistent with Zhu et al. (2025), Choi et al. (2021), Uppathampracha and Liu (2022), and Sun et al. (2024), highlighting self-efficacy as the

principal psychological mechanism linking digital leadership to innovative work behavior in the state-owned banking sector.

CONCLUSION

This study aims to analyze the effect of digital leadership on innovative work behavior among employees of state-owned banks in West Java Province, with work engagement and self-efficacy serving as mediating variables. The results show that digital leadership does not have a direct effect on innovative work behavior but has a positive effect on work engagement and self-efficacy. Furthermore, only self-efficacy was found to significantly mediate this relationship, whereas work engagement did not play a mediating role. These findings indicate that employees' innovative behavior is more influenced by their individual belief in their ability to innovate than by their level of work engagement.

Theoretically, this study enriches the literature on digital leadership and innovative work behavior by demonstrating that the influence of digital leadership on innovative behavior tends to operate through internal psychological mechanisms, particularly self-efficacy. These findings support the perspective of Social Cognitive Theory, which positions an individual's belief in their own abilities as a key factor in driving innovative behavior in work environments undergoing digital transformation. In practical terms, the research findings indicate that state-owned banks need to develop digital leadership practices that focus not only on the use of technology but also on enhancing employees self-efficacy through coaching, mentoring, constructive feedback, and opportunities to engage in innovative activities. Organizations also need to create an environment that supports learning and the sharing of innovative experiences to strengthen employees' confidence in generating and implementing new ideas.

This study has several limitations, namely a sample scope that does not yet represent the entire West Java region, a relatively limited number of respondents, and the use of only two mediating variables, meaning that other factors that could potentially influence innovative work behavior have not been accounted for. Therefore, future research is recommended to use a broader and more representative sample and to develop a research model by adding other variables, such as psychological safety, organizational learning culture, or knowledge sharing, in order to gain a more comprehensive understanding of the factors that drive innovative work behavior.

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