

# THE INFLUENCE OF PSYCHOLOGICAL CAPITAL AND DIGITAL COMPETENCE ON INNOVATIVE WORK BEHAVIOR OF HEALTHCARE EMPLOYEES

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## ABSTRACT

The development of digital transformation in the healthcare sector requires healthcare workers to possess not only technological competence but also psychological capacity that supports innovative work behavior. This study aims to analyze the influence of Psychological Capital, consisting of self-efficacy, hope, resilience, and optimism, and Digital Competency, encompassing digital infrastructure, digital integration, and digital management, on Innovative Work Behavior in healthcare workers. This study used a quantitative approach with a cross-sectional design. Data were collected through a questionnaire survey of 211 healthcare workers and analyzed using the Partial Least Squares–Structural Equation Modeling (PLS-SEM) method via SmartPLS. The results of hypothesis testing showed that self-efficacy ( $\beta = 0.255$ ;  $p < 0.001$ ), hope ( $\beta = 0.148$ ;  $p = 0.001$ ), and resilience ( $\beta = 0.162$ ;  $p = 0.006$ ) had a positive and significant effect on Innovative Work Behavior, while optimism did not show a significant effect ( $\beta = 0.076$ ;  $p = 0.451$ ). In the Digital Competency aspect, digital infrastructure ( $\beta = 0.202$ ;  $p = 0.029$ ) and digital management ( $\beta = 0.109$ ;  $p = 0.039$ ) had a significant effect on Innovative Work Behavior, while digital integration did not have a significant effect ( $\beta = 0.079$ ;  $p = 0.226$ ). These findings confirm that innovative behavior of healthcare workers is more driven by self-confidence, goal motivation, psychological resilience, and the support of digital infrastructure and management capabilities than simply optimism or technology integration in work routines. This research implies that healthcare institutions need to strengthen psychological capital through human resource development programs and improve digital readiness by providing infrastructure and technology management training to encourage sustainable innovation in healthcare services.

**Keywords:** Psychological Capital, Digital Competency, Innovative Work Behavior, Healthcare Workers, PLS-SEM.

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## INTRODUCTION

The healthcare sector faces increasingly complex challenges along with increasing societal needs, the development of new diseases, and the acceleration of digital transformation. Healthcare workers, particularly nurses, are required not only to master clinical skills but also to possess the

capacity to adapt to organizational change and technological innovation. Innovation in work, or Innovative Work Behavior (IWB), is a key factor determining the success of healthcare organizations in maintaining service quality, efficiency, and competitiveness (Awad et al., 2025). IWB encompasses employees' ability to

generate, promote, and implement new ideas relevant to their work, enabling healthcare workers to provide effective solutions for both patients and the hospital service system.

In the context of healthcare workers, IWB depends not only on external factors such as management policies or infrastructure support but is also influenced by internal individual factors. One psychological factor that has received widespread attention is Psychological Capital (PsyCap). PsyCap is a positive psychological construct consisting of four dimensions: Self-Efficacy, Hope, Resilience, and Optimism (Luthans in Ruiz et al., 2024). Numerous studies have shown that PsyCap plays a crucial role in improving the performance, motivation, and well-being of healthcare workers (Chen et al., 2024; Yıldırım et al., 2024). For example, nurses with high levels of self-efficacy are more confident in trying new methods in clinical practice. Similarly, nurses with resilience and optimism are able to withstand work pressure and continue to see opportunities for innovation despite limited resources (Blasco-Giner et al., 2023).

Previous research has also confirmed that PsyCap is closely related to IWB. Karimi et al. (2023) found that PsyCap can mediate the effect of transformational leadership on employee innovative behavior. This indicates that healthcare workers with strong psychological capital are more likely to engage in innovative behavior. However, these studies have not considered digital factors, which are also crucial elements in the modern healthcare era. Thus, it is important to further examine how PsyCap dimensions, such as Self-Efficacy, Hope, Resilience, and Optimism, directly influence IWB in healthcare workers.

On the other hand, digital transformation in healthcare requires mastery of digital skills. Digital Competence is a determining factor in how well healthcare workers can adopt and utilize technology to support work innovation. Digital competence encompasses various dimensions, such as Digital Infrastructure (availability of facilities and access to technology), Digital Integration (the ability to integrate technology into work processes), and Digital Management (the ability to effectively manage digital data and systems) (Carvalho et al., 2023; Mainz et al., 2024).

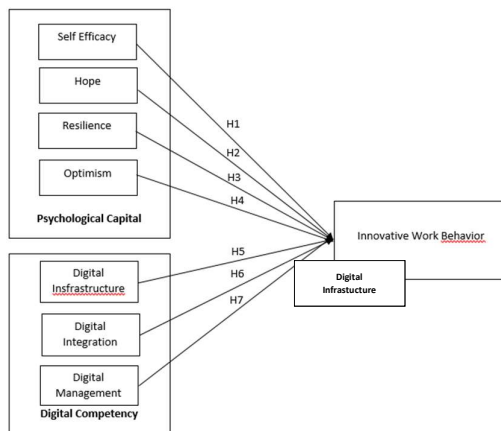
Several studies have shown that Digital Competence significantly influences IWB. Nurses with adequate access to and skills in using technology can more easily generate new ideas, improve service efficiency, and integrate innovative digital-based practices (Dumbre et al., 2025). Carvalho et al. (2023) confirmed that employees with high digital competence are more likely to engage in work innovation. Meanwhile, a study by Alotaibi et al. (2025) highlighted that the success of digital capacity building in the healthcare sector is heavily influenced by organizational readiness and individual abilities to manage digital change.

Although both PsyCap and Digital Competence have been shown to be related to IWB, research integrating these two variables within a single conceptual framework is still limited. Karimi et al.'s (2023) study focused more on PsyCap in the context of leadership without incorporating digital factors. Conversely, Carvalho et al.'s (2023) focused on digital competence on IWB but neglected internal individual psychological factors. Thus, a significant research gap exists: the lack of comprehensive studies examining the simultaneous influence of PsyCap and

Digital Competence on IWB in healthcare workers. This gap is crucial to address, given that nurses and healthcare workers are at the intersection of psychological and digital demands in carrying out their daily tasks.

The novelty of this research lies in its integrative approach, combining psychological and digital aspects to explain innovative work behaviors among healthcare workers. By examining four dimensions of PsyCap (Self-Efficacy, Hope, Resilience, and Optimism) and three dimensions of Digital Competence (Digital Infrastructure, Digital Integration, and Digital Management), this study offers a more comprehensive understanding of the factors that drive IWB.

## LITERATURE REVIEW



**Figure 1. Conceptual Framework**

This study focuses on two main constructs: Psychological Capital (PsyCap) and Digital Competency, as predictors of Innovative Work Behavior. Psychological Capital encompasses four dimensions: self-efficacy, hope, resilience, and optimism (Karimi et al., 2023; Ruiz et al., 2024), which have been shown to enhance an individual's capacity for creative thinking, resilience under pressure, and innovative action in a dynamic work environment. Meanwhile, Digital Competency, encompassing digital infrastructure, digital integration, and digital management, is a crucial foundation for fostering healthcare

workers' ability to utilize digital technology as a means of innovation (Carvalho et al., 2023; Mainz et al., 2024). These two factors are believed to complement each other in fostering innovative work behavior, particularly in the era of healthcare system digitalization.

### Psychological Capital and Innovative Work Behavior

Psychological Capital (PsyCap) is a positive psychological construct consisting of four main dimensions: self-efficacy, hope, resilience, and optimism (Karimi et al., 2023). In the context of healthcare workers, PsyCap has been shown to improve individual motivation, performance, and adaptability to work pressure (Ruiz et al., 2024; Chen et al., 2024). Individuals with high levels of self-efficacy tend to be more confident in facing challenges, bold in trying new approaches, and taking initiative, which are characteristics of Innovative Work Behavior (Karimi et al., 2023; Blasco-Giner et al., 2023).

### Hope and Innovative Work Behavior.

Hope reflects an individual's motivation to achieve goals and the ability to devise alternative solutions when faced with obstacles. In work practice, hope encourages healthcare workers to generate new, creative, and solution-oriented ideas (Chen et al., 2024). Thus,

### Resilience and Innovative Work Behavior.

Resilience, or psychological toughness, is crucial in the stressful and risky healthcare sector. Individuals with high resilience are able to survive difficult conditions, maintain creativity, and continue innovative efforts despite facing failure (Yıldırım et al., 2024; Awad et al., 2025).

### Optimism and Innovative Work Behavior.

Optimism, which reflects positive expectations for future outcomes, can encourage individuals to remain focused on innovative opportunities despite facing obstacles (Blasco-Giner et al., 2023).

Optimism provides psychological energy that strengthens innovation initiatives.

### **Digital Competency and Innovative Work Behavior**

The development of digital technology in the healthcare sector requires healthcare workers to have adequate digital competence. Digital competence includes skills in effectively utilizing, integrating, and managing information technology to improve performance (Mainz et al., 2024). Research by Carvalho et al. (2023) showed that Digital Competency has a significant influence on Innovative Work Behavior, particularly through the use of technology in the creation and implementation of new ideas.

### **Digital Infrastructure and Innovative Work Behavior.**

Digital infrastructure includes the availability and access to digital devices and supporting networks. Adequate digital infrastructure is the primary foundation for healthcare workers to innovate. (Mainz et al., 2024).

### **Digital Integration and Innovative Work Behavior.**

Digital integration relates to the extent to which digital technology is used and integrated into daily work processes. Technology integration enables healthcare workers to generate new ideas, increase efficiency, and improve service quality (Mainz et al., 2024).

### **Digital Management and Innovative Work Behavior.**

Digital management refers to an individual's ability to manage digital data, information security, and the strategic use of digital systems. Healthcare workers with high digital management skills are not only able to use technology, but also contribute to innovative, data-driven decision-making (Carvalho et al., 2023; Dumbre et al., 2025).

## **METHOD**

This research design is quantitative, using a census approach to examine the influence of Psychological Capital and

Digital Competence on Innovative Work Behavior in healthcare workers, particularly nurses, to ensure a more homogeneous population. The study population consisted of all nurses working in hospitals that had advanced digitalization during the data collection period. Inclusion and exclusion criteria, location, and data collection period were clearly reported to comply with the STROBE transparency principle (participants, setting, dates). All participants were asked to provide written informed consent before completing the questionnaire; research ethics approval was submitted to and approved by the relevant institutional ethics committee.

The sample size was determined following the recommendations of Hair et al. (2021) for PLS-SEM. In addition to the 10x rule of thumb (ten times the largest number of paths leading to the endogenous construct), this study used a more conservative approach, targeting a minimum of 200 respondents to obtain stable parameter estimates and to accommodate second-order analysis, and ideally 250–300 respondents if possible (study size and power are explained). The sampling technique can be purposive sampling or stratified purposive sampling (adjusting to the availability and characteristics of healthcare workers), and the sampling procedure is explained to enable readers to assess generalizability.

The data collection instrument is a structured questionnaire containing scales for the following constructs: Self-Efficacy, Hope, Resilience, Optimism (a component of Psychological Capital), Digital Infrastructure, Digital Integration, Digital Management (a component of Digital Competence), and Innovative Work Behavior. Each indicator uses a Likert scale of 1–5 (strongly disagree–strongly agree). Instrument development follows adaptations from validated instruments

cited (Karimi et al., Carvalho et al., Mainz et al.) and involves translation or back translation when necessary. Pilot testing is conducted to check readability and initial reliability (data sources/measurements according to STROBE). Efforts to reduce measurement bias (e.g., social desirability) are noted, and mitigation measures are explained.

The analysis model uses PLS-SEM with software (e.g., SmartPLS) to assess the measurement model (outer model) and structural model (inner model). Explicit emphasis is placed on testing first- and second-order constructs, with Psychological Capital and Digital Competence treated as second-order constructs with a reflective-reflective structure. For second-order constructs, a two-stage approach was used, as recommended by Hair et al. (2021). The first stage estimates latent variable scores for first-order indicators, then the second stage uses these scores to model second-order constructs to produce more stable parameter estimates when sample size and model complexity are taken into account.

Measurement model assessment for reflective constructs includes examining indicator reliability (ideally an outer loading > 0.70; indicators with loadings of 0.40–0.70 are evaluated based on theoretical contributions), internal consistency reliability (Cronbach's alpha and Composite Reliability > 0.70), convergent validity (Average Variance Extracted, AVE > 0.50), and discriminant validity using HTMT (HTMT value < 0.90). Collinearity was checked using the Variance Inflation Factor (VIF < 5). For second-order constructs, validity and reliability were also evaluated at the first- and second-order levels according to the PLS-SEM procedure. All decisions regarding indicator pruning and numerical reporting were presented transparently.

The structural analysis of the model included examining collinearity between latent variables, the coefficient of determination ( $R^2$ ) to assess the model's explanatory capability, and the correlation between variables ( $R$ ) to understand the relationships between constructs. Because this study used a census approach, significance tests such as t-statistics or p-values were not performed. Furthermore, predictive relevance was tested using  $Q^2$  (blindfolding), and external predictive ability was evaluated using PLSpredict if data were sufficient. Partial goodness-of-fit indices, such as SRMR, were reported to report overall model fit.

Finally, ethical approval, informed consent, data anonymization, and the availability of data and supplementary materials (e.g., questionnaires) were explained to facilitate replication. Following Hair et al. (2021) for the implementation of first and second-order PLS-SEM and STROBE guidelines for reporting, this method is designed to produce valid, reliable, and accountable findings regarding the influence of Psychological Capital and Digital Competence on Innovative Work Behavior of nurses in hospitals with advanced digitalization.

## RESULT

**Table 1. Analysis Descriptive**

	Mean	Median	Scale min	Scale max	Standard deviation
SE <sub>1</sub>	3.900	4	1	5	0.921
SE <sub>2</sub>	4.190	4	1	5	0.925
SE <sub>3</sub>	4.081	4	1	5	0.897

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SE 4	4. 06 2	4	1	5	0.944
SE 5	4. 06 6	4	1	5	0.900
SE 6	3. 97 6	4	1	5	0.921
HO 1	4. 06 2	4	1	5	0.949
HO 2	4. 02 4	4	1	5	0.961
HO 3	3. 98 1	4	1	5	0.978
HO 4	4. 10 9	4	1	5	0.975
HO 5	4. 11 8	4	1	5	0.934
HO 6	4. 05 7	4	1	5	0.972
HO 7	3. 79 1	4	1	5	1.004
RE 1	3. 88 2	4	1	5	0.964
RE 2	3. 91 5	4	1	5	1.003
RE 3	4. 09 0	4	1	5	0.885
RE 4	4. 08 1	4	1	5	0.912
RE 5	3. 92 9	4	1	5	0.939
RE 6	3. 86 7	4	1	5	0.898

RE 7	3. 94 3	4	1	5	0.922
OP 1	4. 01 4	4	1	5	0.931
OP 2	4. 01 9	4	1	5	0.860
OP 3	4. 25 1	4	1	5	0.881
OP 4	4. 28 0	4	1	5	0.883
OP 5	3. 96 2	4	1	5	0.886
OP 6	3. 85 3	4	1	5	0.930
DI NS 1	4. 04 7	4	1	5	0.853
DI NS 2	4. 13 7	4	1	5	0.931
DI NS 3	4. 07 6	4	1	5	0.873
DI NS 4	4. 15 6	4	1	5	0.848
DI NS 5	4. 04 7	4	1	5	0.847
DI NT 1	4. 12 3	4	1	5	0.910
DI NT 2	4. 12 8	4	1	5	0.902
DI NT 3	4. 08 5	4	1	5	0.909
DI NT 4	4. 09 0	4	1	5	0.927

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DI NT 5	3. 89 6	4	1	5	0.978
D M1	3. 90 0	4	1	5	0.985
D M2	3. 96 2	4	1	5	0.953
D M3	3. 91 5	4	1	5	0.984
D M4	3. 95 3	4	1	5	1.015
D M5	3. 94 3	4	1	5	1.001
IW B1	4. 23 2	4	1	5	0.848
IW B2	4. 17 5	4	1	5	0.850
IW B3	4. 26 5	4	1	5	0.824
IW B4	4. 16 6	4	1	5	0.852
IW B5	4. 08 1	4	1	5	0.853
IW B6	3. 99 1	4	1	5	0.898
IW B7	3. 99 5	4	1	5	0.868
IW B8	4. 07 6	4	1	5	0.975
IW B9	4. 23 7	4	1	5	0.882
IW B1 0	4. 10 4	4	1	5	0.820

IW B1 1	4. 01 9	4	1	5	0.887
IW B1 2	4. 09 0	4	1	5	0.890
IW B1 3	4. 09 0	4	1	5	0.901
IW B1 4	3. 98 6	4	1	5	0.857
IW B1 5	4. 03 8	4	1	5	0.886

The descriptive analysis results show that all indicators in the research construct have a relatively high mean value, ranging from 3.79 to 4.28 on a 1–5 Likert scale. This indicates that respondents generally gave a positive assessment of all measured variables, both in terms of digitalization and psychological capital. The median value for all indicators was 4, confirming that the majority of respondents' answers were concentrated in the "agree" category. The standard deviation ranged from 0.82 to 1.01, indicating that the variation in respondents' answers was at a moderate level and not too widespread. Thus, the descriptive data confirms that respondents' perceptions of digital infrastructure, digital integration, digital management, hope, optimism, resilience, self-efficacy, and innovative work behavior tended to be high.

**Outer Model**



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H O 5				0.872					B 5									
									I W B 6				0.797					
H O 6				0.863														
									I W B 7				0.749					
H O 7				0.825														
									I W B 8				0.803					
I W B 1					0.831													
									I W B 9				0.813					
I W B 10					0.767													
									O P 1					0.862				
I W B 11					0.789									0.816				
									O P 2									
I W B 12					0.789									0.820				
									O P 3									
I W B 13					0.818									0.844				
									O P 4									
I W B 14					0.781									0.845				
									O P 5									
I W B 15					0.787									0.771				
									O P 6									
I W B 2					0.814													
									R E 1									0.867
I W B 3					0.814													
									R E 2									0.863
I W B 4					0.796													
									R E 3									0.757
I W B 5					0.821													
									R E 4									0.854
I W B 6																		
									R E 5									0.855
I W B 7																		
									R E 6									0.837

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RE 7						0.817	Digital Management	0.687	0.704								
SE 1						0.863	Hope	0.709	0.682	0.645							
SE 2						0.891	Innovative Work Behavior	0.823	0.784	0.723	0.758						
SE 3						0.790	Optimism	0.830	0.876	0.702	0.755	0.837					
SE 4						0.852	Resilience	0.751	0.771	0.686	0.705	0.832	0.855				
SE 5						0.839	Self Efficacy	0.746	0.713	0.647	0.690	0.839	0.814	0.848			

The outer loadings results show that all indicators have loading values above the minimum threshold of 0.70. The highest outer loading values were found in indicators DM1 (0.917) and DINT1 (0.909), while the lowest value was found in indicator IWB10 (0.767). Overall, these results confirm that each indicator has a strong contribution in reflecting its respective latent construct. Thus, the convergent validity of the measurement model has been met because all indicators are able to adequately explain the variables they represent.

**Table 3. HTMT**

	Digital Infrastructure	Digital Integration	Digital Management	Hope	Innovative Work Behavior	Optimism	Resilience	Self Efficacy
Digital Infrastructure								
Digital Integration	0.816							

Based on the Heterotrait-Monotrait Ratio (HTMT) results, all correlation values between constructs were below the threshold of 0.90. The highest value was recorded for the relationship between Digital Integration and Optimism at 0.876, while the other values were within the acceptable range. This indicates that each construct has a good level of discrimination and is conceptually distinct from the others. Thus, the model has met the discriminant validity criteria based on HTMT.

**Table 4. Validity and Reliability**

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Digital Infrastructure	0.913	0.914	0.935	0.741
Digital Integration	0.914	0.919	0.936	0.745

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Digital Management	0.931	0.932	0.948	0.785
Hope	0.948	0.949	0.957	0.762
Innovative Work Behavior	0.959	0.960	0.963	0.637
Optimism	0.907	0.909	0.928	0.684
Resilience	0.928	0.929	0.942	0.700
Self Efficacy	0.923	0.925	0.940	0.722

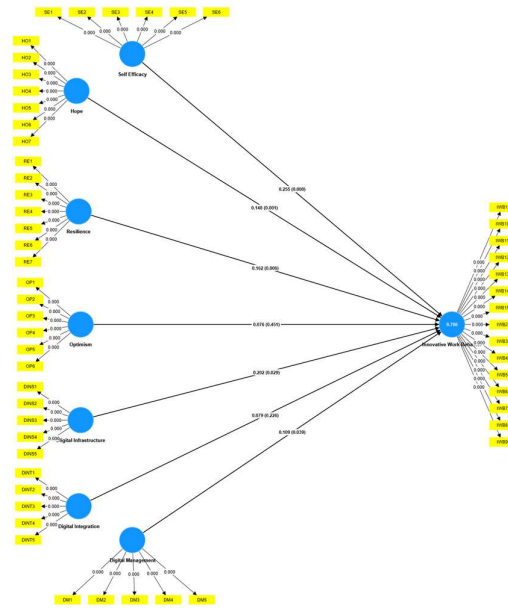


Figure 3. Inner Model

The reliability test results show that all constructs have Cronbach's alpha and composite reliability values above 0.70, with most even above 0.90. The Innovative Work Behavior construct has the highest Cronbach's alpha value of 0.959, indicating very strong internal consistency. Furthermore, the Average Variance Extracted (AVE) value for all constructs is above 0.50, meaning each construct is able to explain more than 50% of the variance in its indicators. Thus, the measurement model meets the criteria for reliability and convergent validity across the board.

Inner Model

Table 5. VIF

	VIF
DINS1	3.869
DINS2	3.184
DINS3	2.483
DINS4	2.211
DINS5	2.332
DINT1	3.592
DINT2	3.043
DINT3	2.774
DINT4	2.689
DINT5	2.063
DM1	4.318
DM2	2.868
DM3	3.368
DM4	2.813
DM5	3.034
HO1	4.427
HO2	3.422
HO3	3.430
HO4	3.629
HO5	3.344
HO6	3.366
HO7	2.646
IWB1	3.244
IWB10	2.536
IWB11	2.749
IWB12	2.540
IWB13	2.911
IWB14	2.532
IWB15	2.467

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IWB2	2.971
IWB3	2.861
IWB4	2.574
IWB5	3.184
IWB6	2.779
IWB7	2.460
IWB8	2.963
IWB9	2.803
OP1	3.216
OP2	2.853
OP3	2.466
OP4	2.772
OP5	2.530
OP6	1.890
RE1	3.446
RE2	3.087
RE3	1.958
RE4	2.917
RE5	3.100
RE6	2.845
RE7	2.607
SE1	2.890
SE2	3.387
SE3	2.067
SE4	2.726
SE5	3.045
SE6	2.431

The VIF results show that all indicators have VIF values below the threshold of 5, with the highest values in HO1 at 4.427 and DM1 at 4.318. This indicates that there are no serious multicollinearity issues among the indicators in the model. Therefore, the relationship between the independent variables can be considered stable and does not introduce bias into the structural path estimation.

**Table 6. R Square**

	R-square	R-square adjusted
Innovative Work Behavior	0.786	0.778

The R-square value for the Innovative Work Behavior construct is 0.786, indicating that the independent variables in the model can explain 78.6% of the variation in respondents' innovative work

behavior. This value is considered strong, indicating that the structural model has high predictive power. Thus, digitalization factors and psychological capital contribute significantly to explaining innovative work behavior.

**Table 7. F Square**

	f-square
Digital Infrastructure -> Innovative Work Behavior	0.063
Digital Integration -> Innovative Work Behavior	0.009
Digital Management -> Innovative Work Behavior	0.026
Hope -> Innovative Work Behavior	0.044
Optimism -> Innovative Work Behavior	0.006
Resilience -> Innovative Work Behavior	0.033
Self Efficacy -> Innovative Work Behavior	0.097

The f-square results show that Self-Efficacy has the largest effect on Innovative Work Behavior with a value of 0.097, followed by Digital Infrastructure (0.063) and Hope (0.044). The variables Digital Integration and Optimism have small effects with values of 0.009 and 0.006, respectively. This indicates that some constructs contribute more strongly than others in influencing innovative work behavior.

**Table 8. Q Square**

	Q <sup>2</sup> predict	RMSE	MAE
Innovative Work Behavior	0.762	0.509	0.279

The Q<sup>2</sup>predict value for Innovative Work Behavior of 0.762 indicates that the model has excellent predictive relevance. Furthermore, the RMSE value of 0.509 and MAE of 0.279 indicate a low level of prediction error. Thus, the model is not only structurally robust but also has high predictive ability.

**Table 9. Hypothesis Testing**

Hypothesis	Coefficient (β)	T-Statistic	P-Value	Decision
Self Efficacy → Innovative	0.255	4.091	0.000	Supported

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<b>Work Behaviour</b>				
<b>Hope → Innovative Work Behaviour</b>	0.148	3.249	0.001	Supported
<b>Resilience → Innovative Work Behaviour</b>	0.162	2.758	0.006	Supported
<b>Optimism → Innovative Work Behaviour</b>	0.076	0.755	0.451	Not Supported
<b>Digital Infrastructure → Innovative Work Behaviour</b>	0.202	2.188	0.029	Supported
<b>Digital Integration → Innovative Work Behaviour</b>	0.079	1.211	0.226	Not Supported
<b>Digital Management → Innovative Work Behaviour</b>	0.109	2.065	0.039	Supported

The results of the hypothesis test indicate that self-efficacy has a positive and significant influence on innovative work behavior. This finding confirms that individuals who have high confidence in their abilities tend to be more confident in facing work challenges, are more willing to try new approaches, and are more proactive in generating innovative ideas. Self-efficacy is an important factor because it encourages workers to act creatively and not hesitate to implement innovations in their work.

Furthermore, hope was also shown to have a positive and significant influence on innovative work behavior. This indicates that individuals who are strongly motivated to achieve goals and are able to find various

alternative solutions when facing obstacles are more motivated to produce innovative behavior. Hope helps individuals stay focused on achievement and encourages the emergence of creative ideas that can increase work effectiveness.

Resilience demonstrated a positive and significant influence on innovative work behavior. This finding indicates that psychological resilience plays a significant role in encouraging innovation, especially in stressful work environments. Resilient individuals are able to survive difficult situations, remain productive, and continue innovative efforts despite facing failure or obstacles. Resilience makes individuals more adaptive and consistent in developing new ideas.

Unlike the previous dimension, Optimism did not show a significant effect on Innovative Work Behavior. This means that a positive attitude toward the future does not necessarily directly drive innovative behavior. While optimism can be encouraging, in certain work contexts, innovation requires more self-confidence, goal-driven motivation, and real resilience than simply a positive outlook.

In terms of digital factors, Digital Infrastructure was shown to have a positive and significant effect on Innovative Work Behavior. This finding suggests that the availability of digital devices, networks, and adequate technological support are important foundations for individual innovation. A strong digital infrastructure enables work to be performed more efficiently and opens up opportunities for generating new ideas within the work process.

However, Digital Integration did not show a significant effect on Innovative Work Behavior. This indicates that although technology is used in daily work activities, this integration is not yet strong enough to directly drive innovation. Technology may only be utilized for routine operational needs and therefore does not act as a trigger for creativity or work innovation.

Finally, Digital Management showed a positive and significant effect on Innovative Work Behavior. These findings confirm that an individual's ability to manage digital systems, data, and strategically use technology can foster innovative contributions at work. Individuals who are able to manage technology effectively not only use digital systems but also leverage them to support decision-making and create information-based innovations.

Overall, the results of this study indicate that Innovative Work Behavior is significantly influenced by self-efficacy, hope, resilience, digital infrastructure, and digital management, while optimism and digital integration do not have a significant direct impact. This confirms that innovative behavior is driven more by self-confidence, resilience, goal motivation, and the support of digital infrastructure and management capabilities than by optimism or simply routine technology use.

IPMA results show that the Self-Efficacy construct has the highest importance value of 0.255 with a performance of 76.166, making it the most strategic factor for increasing innovative work behavior. Digital Infrastructure also has the highest performance (77.314) although its importance is lower than Self-Efficacy. Conversely, Optimism has the lowest importance (0.076), so its contribution to innovative work behavior is relatively small. Thus, the main priority for increasing work innovation should be focused on strengthening self-efficacy and supporting digital infrastructure.

### DISCUSSION

The research results show that the dimensions of Psychological Capital and Digital Competency contribute differently to Innovative Work Behavior in healthcare workers. Self-efficacy has been shown to have a positive and significant influence on Innovative Work Behavior. This finding confirms that individuals who have high confidence in their abilities are more confident in facing challenges, more courageous in trying new approaches, and more active in taking initiative in generating innovative ideas. Psychological capital, particularly self-efficacy, is a key factor because it strengthens an individual's readiness to act creatively and adaptively at work. This aligns with findings that psychological capital plays a crucial role in improving performance and innovation in healthcare workers (Ruiz et al., 2024; Karimi et al., 2023; Blasco-Giner et al., 2023).

In addition to self-efficacy, hope also demonstrates a positive and significant influence on Innovative Work Behavior. Hope reflects an individual's motivation to achieve goals and the ability to devise alternative solutions when faced with obstacles. In a complex healthcare work environment, hope encourages individuals to remain achievement-oriented and strive to find new ways to solve problems, thus

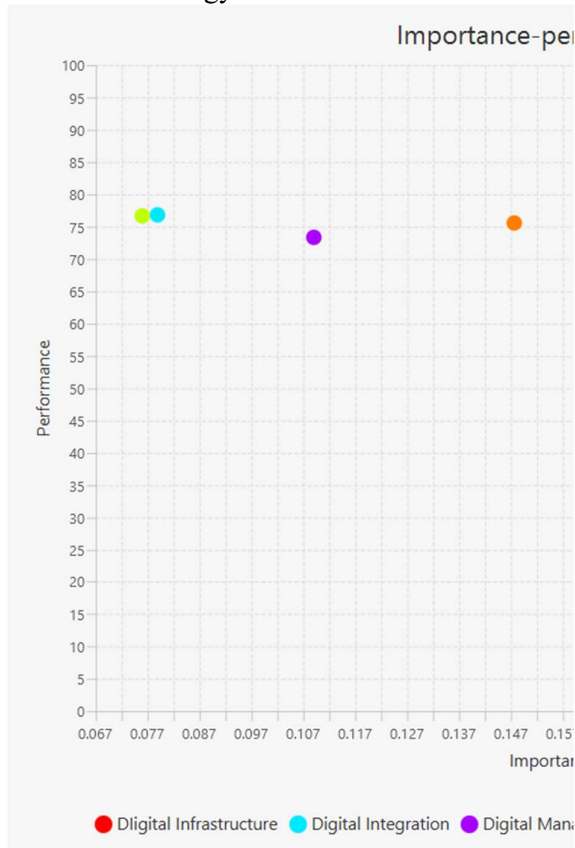


Figure 4. IPMA

supporting innovative behavior. Strong psychological capital has been shown to increase work engagement and coping strategies, leading to improved performance and innovation (Chen et al., 2024; Ruiz et al., 2024).

Resilience has also been shown to have a positive and significant effect on Innovative Work Behavior. Psychological resilience is a crucial aspect in the stressful and high-risk healthcare sector. Individuals with high resilience are able to survive difficult situations, remain productive, and continue innovative efforts despite facing failure. Resilience helps healthcare workers maintain creativity and adaptability in challenging work conditions. This aligns with research emphasizing that resilience is a key driver of innovation and performance in healthcare workers, particularly in emergency situations (Awad et al., 2025; Yıldırım et al., 2024).

Unlike the previous three dimensions, optimism did not show a significant effect on Innovative Work Behavior. Although optimism reflects a positive outlook for the future, the results of this study indicate that optimism alone is not sufficient to directly drive innovative behavior. In the healthcare work context, innovation appears to require more active factors such as self-confidence, goal motivation, and resilience under pressure than simply positive expectations. This finding aligns with research showing that dimensions of psychological capital can contribute differently to innovation depending on the work context and work environment pressures (Blasco-Giner et al., 2023; Ruiz et al., 2024).

In terms of digital competency, digital infrastructure has been shown to have a positive and significant effect on Innovative Work Behavior. This suggests that the availability of digital devices, networks, and adequate technological support are essential foundations for healthcare workers in developing work innovation. A robust digital infrastructure enables individuals to work more efficiently, utilize technology in services,

and opens up opportunities for generating new ideas. These findings support the view that digital readiness and technological support are essential prerequisites for driving innovation in the healthcare sector (Mainz et al., 2024; Alotaibi et al., 2025).

However, digital integration did not significantly impact innovative work behavior. Although technology is used in daily work processes, this integration does not necessarily directly drive innovation. This may be because technology use remains routine and administrative, making it less of a strategic tool for innovation. In the context of healthcare workers, digital integration requires the support of digital competence and autonomy to truly encourage innovative behavior. This aligns with the results of systematic reviews that emphasize that digital competence plays a crucial role in transforming technology use into tangible innovation (Huu, 2023; Mainz et al., 2024).

Finally, digital management demonstrated a positive and significant influence on Innovative Work Behavior. This finding confirms that an individual's ability to manage digital data, maintain information security, and strategically use digital systems can foster innovative contributions at work. Healthcare workers with strong digital management skills are not only able to use technology but also leverage it for data-driven decision-making and service improvement. Previous research has shown that digital competence and empowerment in technology management play a significant role in increasing innovative work behavior in both public and healthcare sector workplaces (Carvalho et al., 2023; Dumbre et al., 2025).

Overall, the results of this study indicate that Innovative Work Behavior is significantly influenced by self-efficacy, hope, resilience, digital infrastructure, and digital management. Meanwhile, optimism and digital integration did not have a significant direct effect. This finding confirms that innovative behavior in

healthcare workers is driven more by the strength of active psychological capital and the support of strategic digital competence, rather than simply optimism or routine technology use.

## CONCLUSION

This study aims to analyze the influence of Psychological Capital and Digital Competency on Innovative Work Behavior in healthcare workers. The results show that the dimensions of Psychological Capital, consisting of self-efficacy, hope, and resilience, have a positive and significant effect on Innovative Work Behavior. These findings confirm that self-confidence, goal orientation, and the ability to persist under pressure are important psychological assets that encourage healthcare workers to take initiative, adapt, and generate new ideas at work. Meanwhile, optimism did not prove to have a significant effect, indicating that a positive attitude alone is insufficient to drive innovation without the support of more active and strategic psychological aspects. In terms of Digital Competency, digital infrastructure and digital management were shown to have a significant influence on Innovative Work Behavior, while digital integration showed no direct effect. This suggests that innovation in the healthcare sector is more influenced by the readiness of digital infrastructure and the ability to strategically manage technology than simply integrating technology into work routines. Overall, this study confirms that innovative behavior in healthcare workers is influenced by a combination of internal psychological strengths and digital competencies that support work transformation in the modern healthcare era. Although this study contributes to understanding the factors influencing innovative work behavior in healthcare workers, several limitations warrant consideration. First, the study used a cross-sectional design, meaning relationships between variables can only be

explained associatively and cannot confirm longitudinal causality. Second, data were obtained through a questionnaire based on respondents' perceptions, potentially introducing subjective bias or socially desirable response tendencies. Third, this study focused solely on the variables of Psychological Capital and Digital Competency, meaning other factors may influence innovative work behavior, such as transformational leadership, organizational culture, workload, or institutional support. Furthermore, the limited context of the study, limited to healthcare workers in a specific environment, may impact the generalizability of the results to other healthcare institutions with different characteristics. Therefore, further research is recommended to employ a longitudinal design, expand the research variables, and involve a more diverse sample to gain a more comprehensive understanding.

The results of this study have important implications both theoretically and practically. Theoretically, this research strengthens the role of psychological capital as a key psychological resource capable of driving innovative behavior in the healthcare sector. These findings indicate that work innovation depends not only on technical skills but also on the individual's mental readiness and adaptive capacity. Furthermore, this study confirms that digital competence, particularly aspects of digital infrastructure and management, is a key supporting factor in creating technology-based healthcare service innovation. Practically, healthcare institutions need to develop psychological capital-strengthening programs through self-efficacy training, resilience building, and goal-based motivation to better prepare healthcare workers for changes and workplace challenges. Hospitals also need to improve digital support by providing adequate technological infrastructure and strengthening digital system management competencies, so healthcare workers not only use technology routinely but are also

able to utilize it innovatively. Therefore, healthcare human resource development strategies should simultaneously integrate psychological and digital aspects to create a more adaptive, creative, and innovative work environment to improve the quality of healthcare services.

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