

## The Effect of Digital Job Resources on Innovative Work Behavior Through Digital Engagement in Employees of PT ABC (Persero) East Java Distribution Unit

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### Abstract

*This study explores the effect of digital job resources on innovative work behavior, with digital engagement serving as a mediating factor, among employees of PT ABC (Persero) East Java Distribution Unit. A quantitative approach was utilized, involving 60 participants. To analyze the data, the Partial Least Squares Structural Equation Modeling approach was applied, assisted by SmartPLS 4 and SPSS 4.0 software. The results indicate that: (1) Digital job resources do not exert a direct influence on innovative work behavior; (2) however, they significantly promote digital engagement; (3) digital engagement, in turn, has a positive impact on innovative work behavior; and (4) it serves as a significant mediator in the relationship between digital job resources and innovative work behavior.*

**Keywords:** *Digital job resources; innovative work behavior; digital engagement.*

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### Abstrak

Penelitian ini bertujuan untuk mengkaji pengaruh sumber daya kerja digital terhadap perilaku kerja inovatif, dengan keterlibatan digital sebagai variabel mediasi, pada karyawan PT ABC (Persero) Unit Distribusi Jawa Timur. Penelitian

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ini menggunakan pendekatan quantitative dengan melibatkan 60 responden. Analisis data dilakukan dengan metode Partial Least Squares Structural Equation Modeling (PLS-SEM), menggunakan bantuan perangkat lunak SmartPLS 4 dan SPSS 4.0. Hasil penelitian menunjukkan bahwa: (1) sumber daya kerja digital tidak berpengaruh langsung terhadap perilaku kerja inovatif, (2) sumber daya kerja digital berpengaruh positif terhadap keterlibatan digital, (3) keterlibatan digital berpengaruh positif terhadap perilaku kerja inovatif, dan (4) keterlibatan digital berperan sebagai mediator yang signifikan dalam hubungan antara sumber daya kerja digital dan perilaku kerja inovatif.

**Kata kunci:** *Digital job resources; innovative work behavior; digital engagement.*

## INTRODUCTION

The advancement of digital technology in today's era has profoundly influenced the business world and human resource management, particularly in how organizations handle their workforce to enhance productivity and foster innovation (Zia et al., 2024). Digital transformation, which involves integrating digital tools into work processes, can alleviate workload, boost efficiency, and support employee development and growth (Bakker & Demerouti, 2007)

Industry 4.0 has accelerated digital transformation across numerous global sectors. According to the World Economic Forum (2020), 85 million existing jobs are expected to be replaced by digital technologies by 2025, while 97 million new digital-based roles will emerge. This significant shift highlights the urgent need for companies to adapt swiftly to the evolving digital business environment.

Based on the Job Demands-Resources (JD-R) theory, job resources such as digital training and communication fall under the category of work resources that can enhance motivation and digital engagement (Bakker & Demerouti., 2017). Digital communication helps facilitate faster information sharing, strengthens interdepartmental collaboration, and improves workflow efficiency (Drummond et al., 2020). At the same time, digital training enables employees to acquire the technological skills and competencies needed in the modern workplace (Zia et al., 2024)

However, availability of a digital job resources does not guarantee innovation. Employees must be digitally engaged, this increased interaction and knowledge-sharing among coworkers promotes the development of innovative ideas. (Memon et al., 2020). Digital engagement allows employees to work more efficiently and engage in an environment that supports innovative behaviors relevant to the company's needs.

According to Messmann et al. (2017), By acting as an intermediary, digital engagement enhances the influence of job demands and resources

on employees' potential to perform innovatively. Digitally engaged employees are generally more driven to explore new methods in accomplishing their tasks. This enhanced drive encourages increased creativity and innovation, both of which are crucial for organizations to remain agile and competitive in a rapidly evolving digital environment.

Digitalization in the energy sector is particularly important given the challenges faced, such as the growing need for energy and the demand to be more efficient and environmentally friendly (World Economic Forum, 2023). As the state-owned electricity provider in Indonesia, the organization has implemented various digitalization programs to enhance operational efficiency and improve the quality of customer service—transitioning from slow, fragmented systems to faster and more integrated solutions. These transformation efforts have earned recognition at the TOP Digital Awards 2022, reflecting the organization's success in digital innovation. Over the past three years, it has received 779 national and international awards for achievements in digital transformation and innovation.

The phenomenon observed in this study highlights that the East Java Distribution Main Unit of Indonesia's state-owned electricity provider has made significant strides in digitalization over the past three years, as evidenced by various national and international awards. The organization also facilitates MC and moderator training, along with digital literacy programs developed by the central training division (Pusdiklat), which is responsible for designing training aligned with employee needs. However, in practice, digital training and communication sessions are typically held only once a year. Additionally, the challenges of adapting to new technologies, coping with high work demands, and experiencing digital fatigue remain pressing issues. The contrast between limited training frequency and the organization's digital recognition presents a compelling area for further investigation.

Based on the identified issues within the East Java Distribution Unit of Indonesia's state-owned electricity provider, this study aims to address the following research questions:

- How do digital job resources influence innovative work behavior and digital engagement among employees?
- How does digital engagement impact employees' innovative work behavior?
- Does digital engagement mediate the relationship between digital job resources and innovative work behavior?

This study also seeks to examine the influence of digital job resources on both innovative work behavior and digital engagement. It contributes to the

existing body of literature in several ways. First, drawing on the Job Demands-Resources (JD-R) theory, it posits that digital job resources play a crucial role in connecting digital engagement with innovative work behavior.

### **Job Demands-Resources Theory**

As a prominent theoretical model, the Job Demands-Resources (JD-R) framework provides valuable insights into how the interplay between job demands and job resources shapes employee well-being, fosters engagement, and drives innovative work behavior' (Arun Kumar et al., 2024). In this framework, job demands are characterized as work-related factors that necessitate continuous physical or mental exertion, potentially leading to fatigue and stress. In contrast, job resources encompass aspects of the work environment that assist employees in managing these demands, accomplishing their objectives, and promoting both personal and professional growth (Demerouti et al., 2001; Bakker & Demerouti, 2007).

In contemporary settings, the JD-R theory has been extensively applied, particularly in examining digital job resources. These resources, such as digital technology and digital training, serve to mitigate stress and enhance employees' capabilities to perform tasks more effectively (Drummond et al., 2020; Erhan et al., 2022). Digital job resources encompass tools like digital platforms, communication technologies, and training programs that assist employees in managing job demand.

### **Digital job resources and innovative work behavior**

Digital job resources enable swift access to information and enhance employee capabilities, thereby fostering innovation in task completion. Numerous studies have confirmed that digital job resources—such as digital communication and digital training—positively influence innovative work behavior (Azevedo & Shane, 2019; Aris & Rajah, 2019; Kamalia et al., 2024).

Digital communication tools—such as email, instant messaging, and video conferencing—enable efficient and timely information sharing among employees. (Na-Nan et al., 2019). Additionally, digital training offers employees continuous opportunities to develop technical skills that contribute to the long-term success of the organization (Drummond et al., 2020; Chikazhe & Nyakunuwa, 2022).

H1. Digital job resources have an impact on innovative work behavior

### **Digital job resources and digital engagement**

When digital communication is well-organized, it strengthens employees' sense of belonging within the team and motivates them to take a more active role in company projects and strategic efforts. This connection has been proven by several previous researchers who state that effective digital job resources can encourage more intensive interactions between team members, so as to increase digital engagement such as, Zia et al., (2024); Memon et al., (2016); Messman et al., (2017).

H2. Digital job resources have an impact on digital engagement

### **Digital engagement and innovative work behavior**

Elevated digital engagement encourages employees to be more actively involved in their work by enhancing their perceived efficacy and improving access to digital information resources. Employees who are digitally engaged are generally more receptive to new ideas and demonstrate a greater readiness to innovate in the workplace (Zia et al., 2024). The link between digital engagement and innovative work behavior has been previously examined by researchers such as Yandong et al., (2024); Nguyena et al., (2024); Pukeeree et al., (2020); Zia et al., (2024).

H3. Digital engagement have an impact on innovative work behavior

### **The mediating role of digital engagement**

Employees who are consistently engaged in digital communication and training activities tend to demonstrate greater proactivity, particularly in generating ideas and contributing to innovation-driven projects (Zia et al., 2024; Memon et al., 2020). According to these studies, effective digital communication enables employees to exchange information more easily, fostering a work environment that supports innovative work behavior.

Messman et al. (2017) emphasize that if digital engagement is poorly managed—for example, due to insufficient support—employees' innovative behavior may decline. Therefore, it is essential for organizations to design digital training programs that are both engaging and practical in order to enhance innovation within the company.

H4. Digital engagement mediates between digital job resources and innovative work behavior

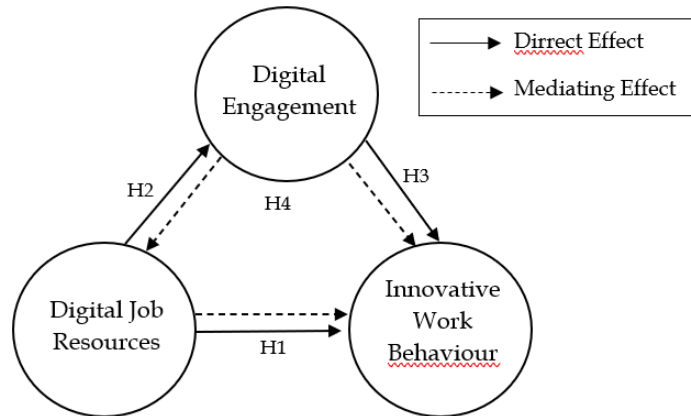


Figure 1. Conceptual framework

Figure 1 shows the conceptual framework of this study. This study will investigate the mediating role of digital engagement on digital job resources and innovative work behavior of employees using data from PT ABC (Persero) East Java Distribution Unit.

## METHODS

This study adopts a quantitative research design, targeting employees of the East Java Distribution Main Unit of Indonesia's state-owned electricity provider. A non-probability purposive (judgmental) sampling technique was employed to select participants based on specific criteria relevant to the research objectives.

Data were collected through a self-administered questionnaire, which was directly distributed to employees in the commercial and customer management, HTD, UP2K, and distribution divisions. Respondents were allotted one to two weeks to complete the survey, yielding 60 valid returns.

Measurement and structural relationships were examined using Partial Least Squares (PLS) modeling in SmartPLS 4.0, with SPSS 25 employed for demographic profiling and descriptive analyses. A five-point Likert scale (1 = strongly disagree to 5 = strongly agree) was used for all survey items. The construct of digital job resources consisted of two subdimensions: digital communication (4 items) and digital training (5 items) (Zia et al., 2024). The construct of innovative work behavior was evaluated through four key dimensions: idea exploration (3 items), idea generation (2 items), idea promotion (3 items), and idea implementation (2 items) (De Jong & Den Hartog, 2010). Digital engagement was measured using six items (Zia et al., 2024).

## RESULT AND DISCUSSION

### Respondent Profile

In addressing the issue of sample size, it is generally recommended that the number of observations be no less than five times the number of variables under consideration (Hair et al., 2022). Table 1 shows that 52% of our respondents are male, while 48% are female.

**Table 1. Respondents Demographic**

No.	Demographic Variables	Classification	Number	presentation
1	Gender	Male	31 People	52%
		Female	29 People	48%
2	Age	20-29 Years	6 People	10%
		30-39 Years	34 People	57%
		40-49 Years	13 People	22%
		50-59 Years	7 People	11%
3	Last Education	High school / Equivalent	1 People	2%
		D3	6 People	10%
		S1	47 People	78%
		S2	6 People	10%
4	Status	Married	51 People	85%
		Not Married	9 People	15%
5	Length of Service	1-10 Years	21 People	35%
		11-20 Years	31 People	52%
		21-30 Years	2 People	3%
		31-40 Years	6 People	10%
6	Position / Department	HTD	12 People	20%
		Niaga	30 People	50%
		UP2K Jatim	8 People	13%
		Distribution	10 People	17%

### ***Convergent Validity***

Validity of the statement items for each indicator—reflecting how well they represent the underlying construct—is commonly assessed through the outer loading value.

**Table 2. Convergent Validity Results**

Variabel	Item Statement	Outer Loading	Description
Digital Job Resources	DJR.1.1	0,756	Valid
	DJR.1.2	0,781	Valid
	DJR.1.3	0,880	Valid
	DJR.1.4	0,832	Valid



	DJR.2.1	0,779	Valid
	DJR.2.2	0,755	Valid
	DJR.2.3	0,719	Valid
	DJR.2.4	0,759	Valid
	DJR.2.5	0,717	Valid
Innovative Work Behavior	IWB.1.1	0,604	Valid
	IWB.1.2	0,540	Valid
	IWB.1.3	0,663	Valid
	IWB.2.1	0,744	Valid
	IWB.2.2	0,728	Valid
	IWB.3.1	0,760	Valid
	IWB.3.2	0,745	Valid
	IWB.3.3	0,813	Valid
	IWB.4.1	0,785	Valid
	IWB.4.2	0,737	Valid
Digital Engagement	DE.1.1	0,520	Valid
	DE.1.2	0,847	Valid
	DE.1.3	0,738	Valid
	DE.1.4	0,794	Valid
	DE.1.5	0,809	Valid
	DE.1.6	0,740	Valid

In this case, indicators with outer loading values between 0.50 and 0.60 are generally regarded as valid. with a relatively small number of indicators for each construct, namely between 3 and 7 indicators. This table shows that the outer loading factor value is more than 0.50, which indicates that all statement items can be said to be valid.

### Discriminat Validity

To determine whether each indicator is valid in explaining latent variables, discriminate validity testing is carried out using the cross loading value and square root of average (AVE) (Table 3).

**Table 3. Discriminant Validity Results**

Variable	Mean	AVE	DE	DJR	IWB
DE	3,80	0,561	0,749		
DJR	3,91	0,604	0,646	0,777	
IWB	3,90	0,513	0,725	0,590	0,717

A measurement model is said to satisfy discriminant validity when the Average Variance Extracted (AVE) exceeds 0.50, and the square root of the AVE for each construct is greater than its correlations with other constructs. The results indicate that each variable's discriminant validity



value surpasses its correlations with other variables, and all AVE values are above the 0.50 threshold. Therefore, it can be concluded that the outer model in this study fulfills the criteria for discriminant validity.

### Resampling bootsraping

The results of direct effect testing can be seen in table 4

**Table 4. Direct Effect Testing Results**

Relationship Between Variables	Original Sample	t-statistics	p-values	Description
Digital job resources towards innovative work behavior	0,210	1,764	0,081	H1 Rejected
Digital job resources towards digital engagement	0,646	5,505	0,000	H2 Accepted
Digital Engagement towards Innovative Work Behavior	0,589	5,168	0,001	H3 Accepted

The results presented in the table indicate that digital job resources have a positive path coefficient of 0.210 toward innovative work behavior, with a t-statistic of 1.764 ( $p = 0.081$ ). However, this effect is not statistically significant, suggesting that digital job resources do not have a direct impact on innovative work behavior. In contrast, the relationship between digital job resources and digital engagement shows a significant positive coefficient of 0.646 with a t-statistic of 5.505 ( $p = 0.000$ ), indicating that digital job resources significantly enhance digital engagement. Furthermore, digital engagement demonstrates a positive and significant effect on innovative work behavior, with a coefficient of 0.589, a t-statistic of 5.168, and a p-value of 0.001.

### Indirect effect

**Table 5. Indirect Effect Testing Results**

Relationship Between Variables	Original Sample	t-statistics	p-values	Description
Digital job resources towards	0,381	3,514	0,001	H1 Accepted

innovative work behavior through digital engagement				
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In the table above there is a positive coefficient value of 0.381 with t-statistics 3.514 ( $p = 0.001$ ) which states that digital job resources have a positive effect on innovative work behavior through digital engagement.

## DISCUSSION

Based on the results of the statistical analysis, it was found that digital job resources do not have a significant effect on innovative work behavior. This finding is consistent with prior studies by Chiu'et al.' (2015) and Sinta'et al.'(2023), which also reported that digital training and digital communication do not significantly influence innovative work behavior.

The findings indicate that employees of the East Java Distribution Unit of Indonesia's state-owned electricity provider actively engage with digital training and digital communication in their daily work. Although the descriptive results show that digital job resources are rated positively—reflecting frequent use of these tools—such resources do not directly foster increased innovative behavior in the workplace.

As outlined in the Job Demands-Resources (JD-R) model introduced by 'Bakker & Demerouti (2007), work resources such as digital communication and digital training can enhance employees' idea generation and overall performance. However, if digital technology is used merely for task completion without being leveraged to explore new ideas, its impact on innovation remains limited.

Furthermore, the findings of this study reveal that digital job resources have a positive influence on digital engagement. This result aligns with prior research conducted by Memon et al. (2020), Pham Tien Thanh and Nguyen Thu Ha (2023), and Ahmed Salim et al. (2024), all of whom found that the presence of digital job resources significantly enhances employees' engagement with digital tools and platforms.

Memon et al. (2016) emphasize that engagement within digital work environments is strongly influenced by the extent to which organizations provide technology-based tools and relevant digital training. Employees of the East Java Distribution Main Unit of Indonesia's state-owned electricity provider reported that the digital training and technologies made available to them enhance both communication and task execution. These findings are in line with the Job Demands-Resources (JD-R) theory, which posits that the availability and effective utilization of job resources strengthen

employee engagement by supporting the accomplishment of work-related objectives.

This finding also states that digital engagement has a positively influences employees' innovative behavior. Which is supported by Jia et al., (2022); Li Yandong et al., (2024) which states that digital engagement fosters a sense of connectedness between employees, their work, and the technology they use, thereby encouraging critical thinking and the implementation of new ideas.

High levels of digital engagement among employees at the East Java Distribution Unit of Indonesia's state-owned electricity provider appear to be closely associated with effective digital communication and the relevance of digital training, despite the irregular frequency of such training programs. This suggests that digital engagement is driven not solely by how often training is conducted, but more importantly by employees' perceived comfort and the practical effectiveness of using digital tools in their day-to-day work activities.

Although no significant direct relationship was found between digital job resources and innovative work behavior, the influence of these resources becomes significant when employees exhibit high levels of digital engagement in their work activities. This finding aligns with the context of the East Java Distribution Unit of Indonesia's state-owned electricity provider, which has received national recognition, including a Best Communication Award, reflecting its strong emphasis on effective digital engagement practices.

Koroglu and Ozmen (2022) assert that employee involvement in digital technology can enhance innovation potential, particularly within organizations that offer sufficient digital job resources. In the context of the East Java Distribution Main Unit of Indonesia's state-owned electricity provider, the findings further support this view, demonstrating that digital engagement plays a critical mediating role in the relationship between digital job resources and innovative work behavior.

This finding is in accordance with the Job Demands-Resources (JD-R) theory which states that job resources such as digital training and digital communication can increase innovation if they have been able to increase employee engagement first, therefore, digital engagement is not only the result of digital job resources, but serves as an important bridge to direct the use of technology towards a more creative and innovative direction.

## **CONCLUSION**

This study aims to investigate the mediating role of digital engagement in the relationship between digital job resources and innovative work behavior among employees of PT ABC (Persero) East Java Distribution Main Unit. Based on the results of the analysis, the following conclusions can be drawn: The analysis reveals that H1 is not supported, indicating that digital job resources do not have a direct impact on innovative work behavior. H2 is supported, showing that digital job resources exert a positive influence on digital engagement. H3 is also supported, confirming that digital engagement positively affects innovative work behavior. Moreover, H4 is supported, demonstrating that digital engagement acts as a mediating variable in the relationship between digital job resources and innovative work behavior.

It is recommended to the management of PT ABC (Persero) East Java Distribution Unit to strengthen and utilize digital resources, digital training can be developed into an organized and structured sustainable program that can increase employee creativity and innovation.

Further research is recommended to be conducted in several industrial sectors and organizations so that the results can be generalized more broadly. Researchers can also develop models by adding other variables such as organizational culture or job satisfaction.

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