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Digital Workload and Technostress on Employee Performance: The Mediating Role of Digital Fatigue

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Abstract

This study investigates how digital workload and technostress affect employee performance, with digital fatigue as a mediating factor in digitally intensive work environments. Using a quantitative survey approach, data were collected from 201 respondents selected through purposive and snowball sampling and analyzed using partial least squares structural equation modeling (PLS-SEM). Results reveal that digital workload has a significant direct positive effect on performance but does not indirectly affect it through digital fatigue. In contrast, technostress has no direct effect on performance, but significantly impacts performance indirectly through digital fatigue. These findings highlight the complex dynamics between digital stressors and worker outcomes, suggesting that organizations should differentiate between types of digital pressures when designing interventions. Practical implications include the need for targeted strategies to manage technostress and digital fatigue, such as digital detox programs, mindful technology use policies, and workload design tailored to digital work contexts.

Keywords: *Digital workload, digital fatigue, employee performance, technostress.*

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1. INTRODUCTION

The development of digital technology is one of the main factors driving change in corporate systems and work processes, in response to rapid changes and work demands (Wulandari et al., 2020). The application of platforms in global companies is becoming increasingly dominant, with seven of the ten largest companies in the world based on market capitalization being platform-based companies (Li et al., 2025). In Indonesia, digitization has also shown significant growth. According to the Ministry of Micro, Small, and Medium Enterprises of the Republic of Indonesia, digitization in MSMEs has been projected since March 2022, with a target of 30 million MSMEs by 2024. Purposive sampling was used to deliberately select respondents who met predefined inclusion criteria, including active use of digital technology in daily work tasks and a minimum of six months of work experience (Kementerian UMKM Republik Indonesia, 2022). Furthermore, the Ministry of Communication and Digital Affairs stated that around 27 million MSMEs had adopted digital technology in August 2024 (Kementerian Komunikasi dan Digital Republik Indonesia, 2024). This effort is reinforced through various strategic policies and programs, such as Making Indonesia 4.0 and the development of the Palapa Ring infrastructure, as a reflection of the government's seriousness in accelerating cross-sector digital transformation.

The increased adoption of digital technology has directly impacted the changes in employee job characteristics. Today, work activities are increasingly dependent on technology, requiring employees to be constantly connected, capable of performing multiple tasks simultaneously, and operate various digital applications and devices at the same time (Hasan, 2024; Yuan & Zhong, 2024). This situation has indeed provided opportunities for increased work efficiency and flexibility (Suhari et al., 2024). It also has consequences in the form of increased work pressure due to the intensity of technology use and the demand to be connected constantly beyond working hours (Bondanini et al., 2025).

In human resource management studies, workload is recognized as the accumulation of job demands that must be completed by individuals within a certain period of time, including time pressure and cognitive demands in the work process (Hart & Staveland, 1988). In the context of digital work environments, these demands stem not only from the amount of work but also from the intensity of technology use, the speed of response, and the need to process digital information continuously. Therefore, this study adopts the concept of digital workload as an extension of conventional workload, which refers to the workload that arises from the demands of using digital technology in work activities, in line with Job Demand–Resources Theory (Demerouti et al., 2001). This shows that the characteristics of workload in a digital context have a different complexity compared to conventional workload. Based on this phenomenon, the uniqueness of this study highlights the concept of digital workload as its main focus. Digital workload is defined as a form of workload that arises from the demands of using digital technology in work activities, including the intensity of interaction with digital systems, expected response speed, and the cognitive capacity required to manage digital information continuously.

In addition to digital workload pressure, technostress is also an emerging challenge in digital activities, as it can affect employee performance. Technostress can be understood as stress arising due to the use of digital technology (Kumar, 2024). Technostress arises due to an individual's inability to adapt healthily to constantly changing technological developments (Hapsari et al., 2024). Interestingly, this research is essential for examining the effect of technostress on employee performance, which still yields contradictory findings. Some studies have found a significant negative effect (Di Dalmazi et al., 2022; Tu et al., 2025), while other studies have found a positive effect of technostress (Saleem & Malik, 2023). A high digital workload has the potential to impact employee performance. Referring to Job Demand–Resources Theory, increased work demands can trigger work fatigue (Bakker & Demerouti, 2017). In the digital context, this fatigue can be manifested in the form of digital fatigue, which is a condition of mental and emotional exhaustion arising from continuous exposure and interaction with digital technology (Fauville et al., 2021; Supriyadi et al., 2025). Theoretically, continuous exposure to digital technology and excessive digital work demands can drain employees' cognitive and psychological resources (Scholze & Hecker, 2023). Over time, this depletion may lead to digital fatigue among employees. In turn, digital fatigue can reduce employees' ability to concentrate, manage their mental

resources, and maintain optimal job performance. Thus, digital fatigue may act as a mediating mechanism through which digital workload and technostress influence employee performance.

Previous studies have examined the effects of workload and work stress on employee performance through fatigue. A study conducted by Weni et al. (2023) found that fatigue did not significantly mediate between workload and employee performance. However, findings from Purwanti et al. (2022) found that fatigue had a negative and significant effect in mediating between workload and employee performance. This inconsistency highlights a research gap that is interesting to examine and apply to environments exposed to digital technology. Although various studies have discussed workload, work stress, and fatigue, research specifically raising digital workload, technostress, and the role of digital fatigue in affecting employee performance remains relatively limited. Furthermore, this study focuses on employees whose work processes are exposed to digitalization, where the use of technology plays a role in supporting daily work activities.

This study aims to formulate a conceptual model that places digital workload and technostress as independent variables, digital fatigue as a mediating variable, and employee performance as a dependent variable. Thus, this study offers novelty by recontextualizing the research models of Weni et al. (2023) and Purwanti et al. (2022) with the concepts of workload and work stress through fatigue in the conventional context to the digital work context, which explains how digital workload and technostress can affect employee performance through the mechanism of digital fatigue. This study is expected to contribute theoretically to the development of work behavior studies in the digital era and serve as an empirical basis for organizations in managing digital workload and stress among employees.

2. LITERATURE REVIEW

2.1 Job Demand-Resources (JD-R) Theory

According to Job Demand-Resources (JD-R) Theory, all occupations are characterized by two fundamental components: job demands and job resources. Work-related factors that are imposed on an employee and require physical and psychological effort, such as excessive workload, time pressure, and physical environment, are referred to as job demands. Supportive work-related factors, such as rewards, job control, and feedback, are categorized as job resources that help employees achieve predetermined work goals. If there is an imbalance between high job demands and limited job resources, it will trigger fatigue (Demerouti et al., 2001). JD-R theory explains that the magnitude of demands and the magnitude of resources that can overcome them will create a process of exhaustion or a process of motivation (Bakker & Demerouti, 2007). This model also highlights individual factors such as personality, mood, attitude, and feelings about work that may shape how job demands and job resources interact (Bakker & Demerouti, 2014).

2.2 Digital Workload

Workload refers to the amount of work responsibilities that an employee is required to accomplish within a specified time frame; when these responsibilities exceed the available capacity, they constitute a workload (Nasrul et al., 2023). An uncontrolled workload can lead to inefficiencies in employee performance. Workload is influenced by various factors, including individual, organizational, and work environment conditions. From an individual perspective, workload is influenced by time management skills, technical skills, and psychological conditions (Kumarasamy et al., 2015), while from an organizational perspective, workload is influenced by uneven task distribution, inefficient scheduling systems, and high target pressure (Triansyah et al., 2023). There are also factors related to the work environment, such as the use of complex technology, poor communication, and a lack of social support (Yildizhan et al., 2023). In the context of the digital environment, digital workload arises from the use of digital systems and information technology. This condition includes information overload (Arnold et al., 2023), digital multitasking (Nabung, 2024), and the always-on culture (Supriyadi et al., 2025). Digital workload occurs due to the accumulation of work demands that must be completed by individuals within a certain period of time using technology such as computers/laptops, where all work uses digital work applications, such as long Zoom meetings or processing large amounts of work digitally, thereby creating time, cognitive, emotional, and technical burdens.

2.3 Technostress

Technostress is a response to excessive technological pressure (Muhamad et al., 2025). The term technostress refers to mental pressure and distress that arise from an individual's inability to adapt healthily to constantly changing technology (Hapsari et al., 2024). Technostress is triggered by five factors, namely overload, invasion, privacy, complexity, and insecurity (Cao et al., 2025; Tarafdar et al., 2007). In addition, technostress will easily arise when employees are highly dependent on technology, there is a knowledge and skill gap between employees, and there are cultural changes in the work environment (Kumar, 2024).

2.4 Digital Fatigue

Digital fatigue refers to cognitive fatigue that occurs as a result of intensive use of technology, which can potentially disrupt health (Munawaroh, 2021). This fatigue encompasses visual, emotional, motivational, social (Romero-Rodríguez et al., 2023), and cognitive aspects (Döring et al., 2022). Digital fatigue is more situational in nature and can arise in a short period of time, leading to decreased productivity, increased work errors, and the intention to resign. Factors that can exacerbate digital fatigue include increased work volume, the speed of change, the complexity of digital systems, and connectivity disruptions.

2.5 Employee Performance

Performance is an employee's achievement in completing their work, both in terms of quality and quantity (Jannah & Yuliawati, 2022). Employee performance is defined as work results that are influenced by incentives, the work environment, and work discipline (Tanti & Santoso, 2023). Employee performance is also measured through work results, work attitude, efficiency, initiative, and work quality (Triansyah et al., 2023). Factors that influence performance include satisfaction, organizational strategy, and economic conditions. Employee performance will improve if the organization can foster good relationships and create a positive environment. Conversely, employee performance will decline if there are gaps, a lack of support, and a poor work environment (Alqarni et al., 2023).

2.6 Hypothesis Development

Evidence from Rakhmayati et al. (2024) indicates that lower levels of workload are associated with improved employee performance, whereas excessive workload tends to reduce performance outcomes. In contrast, Ashar et al. (2021) argue that workload can have a positive effect on employee performance if the workload is increased positively. Similarly, previous studies on the effect of technostress on employee performance have shown inconsistent results. Prior studies suggest that technostress has a negative impact on performance due to increased cognitive load and decreased work focus (Di Dalmazi et al., 2022; Wu et al., 2023). However, other research has found that technostress does not always reduce performance (Mustika & Martdianty, 2023; Saleem & Malik, 2023). Suryawijaya & Putri (2025) found that digital fatigue was positively and significantly influenced by digital workload.

In addition, Muhamad (2025) explains that technostress has a positive impact on burnout and fatigue, which ultimately affects performance. Paraswati and Pujianto (2024) found that fatigue exhibited a relatively weak mediating role in the relationship between workload and individual performance, which is consistent with the findings reported by Weni et al. (2023). In contrast to the findings of Nadapdap et al. (2024) and Purwanti et al. (2022), which found that fatigue can mediate the relationship between workload and employee performance. Similarly, prior research conducted by Yener (2018) found that technostress, through burnout, can lead to a decline in employee performance. Referring to previous studies, the present research examines seven hypotheses related to employee performance responses to digital workload, technostress, and digital fatigue, as follows:

H1 : The higher the level of digital workload, the lower the employee performance.

H2 : The higher the level of technostress, the lower the employee performance.

H3 : The higher the level of digital workload, the higher the digital fatigue experienced by employees.

H4 : The higher the level of technostress, the higher the digital fatigue experienced by employees.

H5 : The higher the level of digital fatigue, the lower the employee performance.

H6 : The higher the level of digital workload, the higher the digital fatigue experienced by employees, which in turn lowers

employee performance.

H7 : The higher the level of technostress, the higher the digital fatigue experienced by employees, which in turn lowers employee performance.

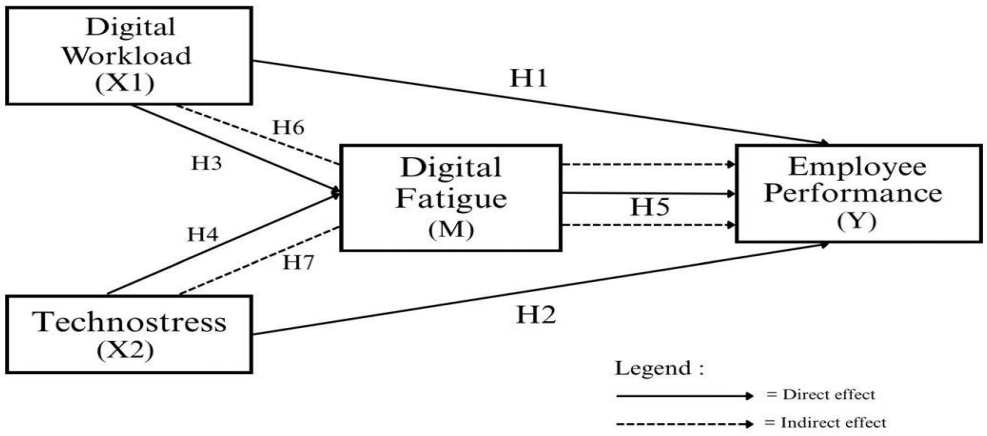

Figure 1. Research Framework Model

3. RESEARCH METHOD

Using a quantitative approach with a survey method (Rachman et al., 2024) enables researchers to collect numerical data that can be statistically analyzed to test hypotheses about the influence of digital workload and technostress on employee performance, with digital fatigue as a mediating factor. The research population consists of employees working in digital-intensive job roles across various organizations, including office workers, specialists in digital and data fields, and employees in content and marketing divisions. High intensity of interaction with technology in this study refers to job roles in which digital tools, platforms, or systems are used as the primary means of performing daily work tasks for the majority of working hours. This population was selected because such roles are more susceptible to digital fatigue due to continuous exposure to digital workloads.

Given the heterogeneous nature of digital work environments and the absence of a centralized database of employees in digital-intensive roles, this study employed a non-probability sampling approach. Purposive sampling served as the primary sampling technique, as respondents were deliberately selected based on predefined inclusion criteria (Arianto & Handayani, 2024), including active use of digital technology in daily work tasks and a minimum of one year of work experience. To further expand the reach of eligible participants, snowball sampling was additionally applied, whereby initial respondents were asked to recommend other individuals who met the research criteria (Ting et al., 2025). This combined approach ensured that participants met the predefined criteria and facilitated access to eligible respondents who were not easily identifiable through formal organizational records. The sample size was determined based on rule-of-thumb guidelines (Hair et al., 2021), which recommend a minimum ratio of 5–10 respondents per indicator. With a total of 201 respondents, the sample size met the recommended criteria for conducting SEM-PLS analysis. Data collection was conducted through questionnaires (Wardhana, 2023) using an ordinal scale with seven points (Aybek & Tomaran, 2022). Using Partial Least Squares (PLS) with the help of SMARTPLS 3 software, this technique was chosen because it is capable of handling the complexity of relationships between latent variables, including the mediating effect, which is the main focus of this study (Feng et al., 2020).

Two variables were used: exogenous variables consisting of digital workload and technostress, and endogenous variables consisting of digital fatigue and employee performance. Each variable in this study was measured using several indicators adapted from previous studies. The research questionnaire design is shown in Table 1.

TABLE 1 | Research Instrument Questionnaire

Construct	Indicator	Measurement Item
The digital workload variable was adapted from conventional workload dimensions by selecting two dimensions, namely mental demand and temporal demand (Natanael et al., 2023; Xi et al., 2023). In addition, three dimensions from Digital Job Demands were incorporated, including availability, dependence, and work intensification (Scholze & Hecker, 2023).		
Digital Workload (DW)	DW1	I am required to work quickly in my job.
	DW2	In addition to online work, my job requires physical activities.
	DW3	I am sometimes expected to work outside normal working hours.
	DW4	I have to work hard to achieve the expected targets.
	DW5	I feel required to be ready to respond to work anywhere.
	DW6	My work depends heavily on digital tools.
	DW7	My workload has increased as work has accelerated due to digitalization.
Technostress is assessed based on several key dimensions, including techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty (Cao et al., 2025; Tarafdar et al., 2007).		
Technostress (T)	T1	The volume of information generated by technology sometimes overwhelms me.
	T2	The use of technology makes it difficult for me to separate work from personal life.
	T3	I need time to understand how to use some new systems or technologies.
	T4	I continuously develop my skills to remain competitive in my job.
	T5	Frequent changes in applications or systems require constant adaptation.
	T6	My workload has increased due to the growing complexity of technology.
	T7	The use of technology reduces the amount of time I spend with my family.
	T8	I feel frustrated when technical problems occur with digital tools.
Digital fatigue is measured through five dimensions adapted from Fauville et al. (2021) and Yglesias-Alva et al. (2025), namely cognitive fatigue, emotional exhaustion, visual/physical fatigue, social fatigue, and motivational fatigue.		
The Digital Fatigue variable begins with the statement “After working long hours using digital devices...”		
Digital Fatigue (DF)	DF1	I feel physically or mentally exhausted.
	DF2	I feel emotionally sensitive or moody.
	DF3	My vision feels blurry or strained.
	DF4	I prefer not to interact with other people.
	DF5	I find it difficult to concentrate.
	DF6	I often feel like avoiding online conversations.
	DF7	I often feel too tired to do other activities.
	DF8	I sometimes experience headaches or back pain due to fatigue
Several indicators are used to assess employee performance, including task performance, contextual performance, adaptive performance, and creative behavior (Abbasi et al., 2022; Lousã et al., 2024; Platania et al., 2024).		
Employee Performance (EP)	EP1	I consistently achieve the targets assigned to my work.
	EP2	I am able to determine priorities.
	EP3	I manage my time effectively.
	EP4	I continuously improve my job-related knowledge.
	EP5	I seek innovative solutions to challenges at work.
	EP6	I am able to take initiative in solving problems.

Source : Data processed (2025)

4. RESULTS AND DISCUSSION

4.1 RESULTS

4.1.1. Characteristics of Respondents

The characteristics of the respondents are presented in Table 2.

TABLE 2 | Characteristics of Respondents

Measurement	Category	Frequency	Percentage
Gender	Male	81	40,29%
	Female	120	59,71%
Age	20-25 years	123	61,19%
	26-30 years	31	15,42%
	31-45 years	24	11,94%
	>46 years	23	11,44%
Occupation	Content & digital marketing	104	51,74%
	Digital & data specialist	34	16,91%
	Office Worker	54	26,86%
	Others	9	4,48%
Tenure	1-3 years	138	68,66%
	4-6 years	25	12,44%
	7-10 years	9	4,48%
	> 10 years	29	14,43%
Average Working Hours	< 30 hours per week	58	28,86%
	30-40 hours per week	47	23,38%
	42-50 hours per week	72	35,82%
	>50 hours per week	24	11,94%
Education	High School Graduate	53	26,37%
	Bachelor's Degree	133	66,17%
	Master's Degree	15	7,46%
Income	<5 million	151	75,12%
	6-10 million	34	16,92%
	>10 million	16	7,96%

Source : Data processed (2026)

Based on the results shown in Table 2, the majority of respondents were female, with a total of 120 respondents (59.71%). The 20-25 age group also dominated the respondents, with a total of 123 respondents (15.42%), indicating that most respondents were young people. Currently, content and digital marketing jobs are also in high demand in the digital era. This is evident in the respondents' occupations, which are dominated by content and marketing, with 104 respondents (51.74%). The majority of respondents had an average of 42-50 working hours per week, with a percentage of 35.82%, and a working period of 1-3 years, with a percentage of 68.66%, where this aspect was taken into consideration in this study to show how long the respondents had been exposed to technology. In addition, the education aspect is dominated by bachelor's degree holders (133 respondents; 66.17%), while the majority reported an income below 5 million (151 respondents; 75.12%).

4.1.2. Measurement Model Analysis

To ensure that the research instruments can measure the constructs properly and accurately, convergent validity, reliability, and discriminant validity tests were conducted.

TABLE 3 | Outer Loading Values

Variable	Construct	Outer Loading	Interpretation
Digital Workload	DW1	0.730	Valid (strong)
	DW3	0.658	Valid (moderate)
	DW4	0.737	Valid (strong)
	DW5	0.767	Valid (strong)
Technostress	T1	0.744	Valid (strong)
	T2	0.727	Valid (strong)
	T3	0.615	Valid (moderate)
	T7	0.716	Valid (strong)

	T8	0.682	Valid (moderate)
Digital Fatigue	DF1	0.708	Valid (strong)
	DF2	0.801	Valid (strong)
	DF4	0.770	Valid (strong)
	DF5	0.824	Valid (strong)
	DF7	0.859	Valid (strong)
	DF8	0.713	Valid (strong)
Employee Performance	EP1	0.782	Valid (strong)
	EP2	0.785	Valid (strong)
	EP3	0.778	Valid (strong)
	EP4	0.756	Valid (strong)
	EP5	0.708	Valid (strong)

Source : Data were processed using SmartPLS 3 (2026)

Convergent validity analysis is considered adequate if the outer loading value exceeds 0.7. In this study, several instruments did not meet the outer loading value. Then, indicators that did not meet the criteria were eliminated and evaluated. Indicators with outer loadings between 0.60 and 0.70 could still be considered if they contributed to improving the overall reliability and construct validity (Hair et al., 2019). Therefore, the DW3, T3, and T8 indicators with higher outer loadings are retained in the model as shown in Figure 2. In addition, convergent validity is considered adequate if the AVE value exceeds 0.5, and the AVE values shown in Table 4 meet this criterion.

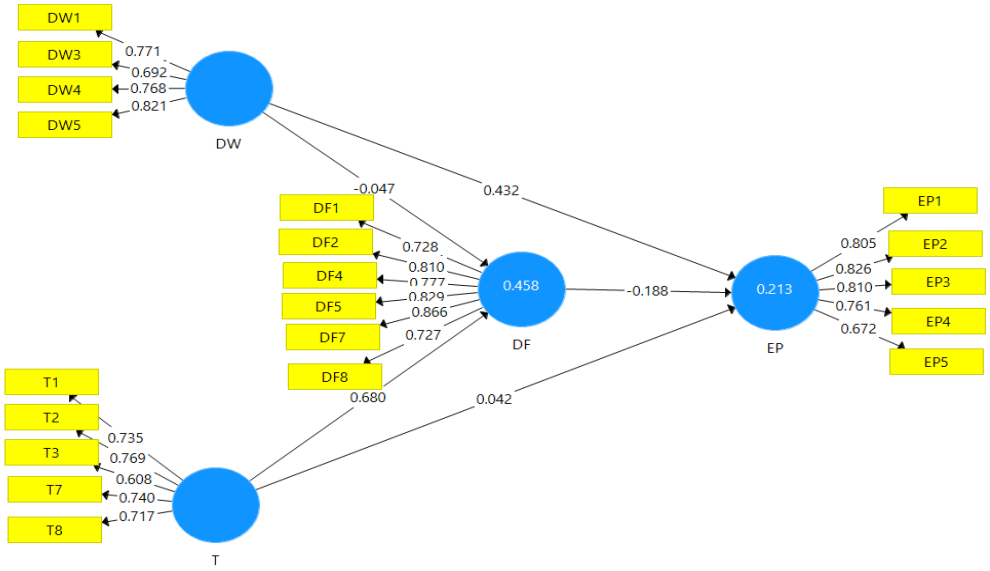

Figure 2. Results of Outer Loading Evaluation

TABLE 4 | Construct Validity and Reliability

Variable	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
DW	0.767	0.849	0.585
T	0.762	0.840	0.513
DF	0.880	0.909	0.626
EP	0.835	0.883	0.603

Source : Data were processed using SmartPLS 3 (2026)

TABLE 5 | Discriminant Validity

	DF	DW	EP	T
HTMT				
DF	0.091			
DW	0.172			
EP	0.172	0.513		

T	0.808	0.234	0.140	
Fornell-Larcker				
DF	0.791			
DW	0.026	0.765		
EP	-0.148	0.431	0.777	
T	0.675	0.108	-0.038	0.716

Source : Data were processed using SmartPLS 3 (2026)

Furthermore, to assess construct reliability, Cronbach's Alpha and Composite Reliability values were greater than 0.70. Table 4 shows that Cronbach's Alpha and Composite Reliability met the criteria. Then, the construct is declared to have good discriminant validity if the AVE root is greater than the correlation between constructs, which this study has met as shown in Table 5. The HTMT value also meets the requirements, where all HTMT ratios are < 0.9. The results of this outer model show that the research instruments used to measure the construct are consistent and accurate.

4.1.3. Structural Model Analysis

TABLE 6 | Structural Model Fit

R Square	
DF	0.458
EP	0.213
Model Fit	
SRMR	0.078
Q^2	
DF	0.278
EP	0.119

Source : Data were processed using SmartPLS 3 (2026)

In this study, the independent variables explained 45.8% of the variation in digital fatigue, while the remaining 54.2% was attributable to factors outside the model. Meanwhile, the R^2 value of 0.213 indicates that the model explains 21.3% of the variance in employee performance (EP), suggesting weak explanatory power, although it remains acceptable (Hair et al., 2019). Additionally, the SRMR value of 0.078 in this study indicates that the model has good suitability, as it is below 0.08. The $Q^2 > 0$ value shown in Table 6 indicates that the research model has predictive ability. Thus, the structural model is considered suitable for use in hypothesis testing.

4.1.4. Hypothesis Testing

TABLE 7 | Hypothesis Testing Results

Path	Original Sample	Sample Mean	Standard Deviation	T-Statistics	P-Value	Result
Direct Effect						
DW → EP	0.432	0.442	0.051	8.521	0.000	Significant
T → EP	0.042	0.044	0.088	0.473	0.636	Non-significant
DW → DF	-0.047	-0.047	0.057	0.837	0.402	Non-significant
T → DF	0.680	0.686	0.041	16.647	0.000	Significant
DF → EP	-0.188	-0.193	0.091	2.068	0.039	Significant
Indirect Effect						
DW → DF → EP	0.009	0.009	0.013	0.709	0.478	Non-significant
T → DF → EP	-0.128	-0.132	0.063	2.026	0.043	Significant

Source : Data were processed using SmartPLS 3 (2026)

Based on the hypothesis test results table, the coefficient path of 0.432 with t-value > t-table (8.521 > 1.96) and p-value of 0.000 < 0.05 confirms that digital workload negatively and significantly affects employee performance, thus accepting H1. The coefficient path of 0.042 with t-value > t-table (0.473 > 1.96) and p-value of 0.636 > 0.05 confirms that technostress does not significantly affect employee performance, thus rejecting H2. The coefficient path of -0.047 with t-value < t-table (0.837 < 1.96) and p-value of 0.402 > 0.05 confirms that digital workload does not significantly affect digital fatigue, so H3 is rejected.

The coefficient path of 0.680 with t-value > t-table (16.647 > 1.96) and p-value of 0.000 < 0.05 confirms that technostress negatively and significantly affects digital fatigue, so H4 is accepted. The coefficient path of -0.188 with t-value > t-table (2.068 > 1.96) and p-value of 0.039 < 0.05 confirms that digital fatigue negatively and significantly affects employee performance, so H5 is accepted. The coefficient path of 0.009 with t-value < t-table (0.709 < 1.96) and p-value of 0.478 > 0.05 confirms that digital workload does not significantly affect employee performance through digital fatigue, thus rejecting H6. The coefficient path of -0.128 with t-value > t-table (2.026 > 1.96) and p-value of 0.043 < 0.05 confirms that technostress negatively and significantly affects employee performance through digital fatigue.

4.2 DISCUSSION

4.2.1. Analysis of the Effect of Digital Workload on Employee Performance

Digital workload significantly contributes to reducing employee performance in the era of digitalization, thus Hypothesis 1 is accepted. Digital-based workload can make employees feel overwhelmed because they feel compelled to be constantly connected in the era of the global village, where boundaries between spaces are fading due to technological developments. In addition, digital workload can also reduce employee performance, similar to the negative impact of conventional workload on performance (Rakhmayati et al., 2024). The level of digital workload observed among employees in this study primarily stems from the demands of rapid responsiveness and availability beyond working hours. This finding highlights a limitation of the study, where the aspects of digital intensity and employee dependence on digital systems have not been comprehensively explained. Therefore, further research is recommended to develop digital workload indicators and test them in companies that fully implement digital-based work systems, thereby reducing variations in technology exposure levels between individuals and making digital workload measurements more consistent.

4.2.2. Analysis of the Effect of Technostress on Employee Performance

The analysis results indicate the rejection of Hypothesis 2, which means that technostress does not have a significant direct effect on employee performance in a digital work environment. This is in line with previous studies, which state that technostress does not always imply a decline in performance (Mustika & Martdianty, 2023; Saleem & Malik, 2023). However, these findings also contradict several previous studies that found negative effects of technostress (Di Dalmazi et al., 2022; Wu et al., 2023). This discrepancy suggests that employees have been able to adapt to the intensity of digital system use, so that the emotional pressure or stress arising from technology does not directly affect performance. In addition, factors such as training, social support, and creative self-efficacy can help employees maintain their work performance even when faced with technostress (Saleem et al., 2021; Weinert et al., 2020).

4.2.3. Analysis of the Effect of Digital Workload on Digital Fatigue

Hypothesis 3 is rejected, indicating that higher levels of digital workload do not correspond to an increase in digital fatigue experienced by employees. This phenomenon suggests that employees have adapted to the digital work system. In the context of modern work, the use of technology has become part of the daily work routine, so that an increase in digital workload is not always associated with an increase in cognitive fatigue. Previous findings state that a high workload can increase the fatigue felt by employees in a conventional work context (Purwanti et al., 2022; Weni et al., 2023). However, digital-based workloads do not always increase the digital fatigue felt by employees. This is likely because employees have become accustomed to the routine repetition of digital workloads and have developed effective coping strategies. In addition, the heterogeneity of digital exposure levels between individuals and differences in adaptive abilities may be factors that weaken the direct relationship between digital workload and digital fatigue.

4.2.4. Analysis of the Effect of Technostress on Digital Fatigue

The significant influence of technostress on digital fatigue in the digital work environment supports Hypothesis 4. Previous findings mention that technostress can have a significant impact on fatigue caused by the intensity of technology (Muhamad et al., 2025). This confirms that digital fatigue is more influenced by technostress as a form of psychological pressure than by digital workload, which is quantitative and characterized by repetitive routine tasks, where the main demands stem from

the speed of task completion and responsiveness, which do not always trigger digital fatigue. These findings have important implications for companies in developing policies and work practices that support a healthier work environment. Efforts that can be made include: managing response demands outside working hours, setting limits on the use of work technology, providing training and social support, and providing an ergonomic work environment (Kumar, 2024).

4.2.5. Analysis of the Effect of Digital Fatigue on Employee Performance

The significant influence found between digital fatigue and employee performance supports Hypothesis 5. The higher the fatigue arising from digital intensity, the lower the performance. These findings are consistent with previous studies showing that digital fatigue affects employee performance (Supriyadi et al., 2025). This phenomenon is crucial to consider, as performance is a key determinant of organizational success. Managing digital fatigue cannot be entirely left to individual self-management efforts, but also requires an active role from the organization, such as reorganizing digital working hours, responsive work design, mental health support, and self-regulation training (Lamsir, 2025).

4.2.6. Analysis of the Effect of Digital Workload on Employee Performance through Digital Fatigue

The insignificant effect of digital workload on employee performance with digital fatigue as a mediating variable indicates that Hypothesis 6 is rejected. This finding confirms that the decline in performance triggered by digital workload does not occur through digital fatigue. Previous studies in the context of conventional work also state that fatigue has a low influence in mediating the relationship between workload and employee performance (Paraswati & Pujianto, 2024; Weni et al., 2023), which contrasts with findings that show a mediating effect of fatigue (Nadapdap et al., 2024; Purwanti et al., 2022). In the context of work in a digital environment, the workload arising from technological intensity does not consistently lead to digital fatigue. Consequently, the mediation pathway through digital fatigue is not significant, and this relationship tends to be weak.

4.2.7. Analysis of the Effect of Technostress on Employee Performance through Digital Fatigue

An interesting finding emerged in hypothesis 7 testing, which showed that digital fatigue significantly mediates the relationship between technostress and employee performance. This indicates that technostress does not initially have a direct effect on employee performance. However, technostress first triggers an increase in digital fatigue, which ultimately impacts performance, in line with previous research (Yener, 2018). The higher the level of technostress experienced, the higher the digital fatigue felt by employees, which ultimately results in lower performance. This finding is consistent with the JDR theory (Demerouti et al., 2001), which emphasizes that long-term work demands can increase fatigue and, in turn, this fatigue reduces employee performance.

5. CONCLUSION

The findings show that digital-based work demands do not always have a direct effect on employee performance but may operate through intermediary mechanisms. Digital fatigue acts as a mediator in explaining the decline in employee performance when the level of technostress is high. This indicates that the psychological pressure arising from the use of technology and digital work demands does not necessarily reduce performance directly, but instead first depletes employees' cognitive and psychological resources, which subsequently leads to digital fatigue. When this fatigue occurs, employees experience reduced concentration, diminished mental energy, and lower work performance. Conversely, high levels of digital workload experienced by employees can directly reduce employee performance without digital fatigue acting as a mediating variable. This occurs because, as digital work demands increase, employees face limited time and work capacity to complete multiple technology-based tasks simultaneously. These conditions can directly reduce the quality of task completion and overall work effectiveness. These findings highlight that different forms of digital work demands influence employee performance through distinct pathways. Theoretically, this study extends the understanding of job demands in digital work environments by demonstrating that psychological (technostress) and structural digital demands (digital workload) operate through different mechanisms. Therefore, digital work demands need to be understood more specifically, not only in terms of task quantity but also in terms of the nature of the pressure they generate. From a practical perspective, the findings suggest that organizations need differentiated strategies

for managing digital work demands, particularly to prevent digital fatigue and improve digital task design in order to maintain employee performance.

6. LIMITATION AND IMPLICATION

This study has several limitations. First, the survey method was conducted independently and online, which, while efficient for reaching respondents across diverse occupations, relies on self-reported responses and may introduce response bias or inconsistent understanding of questions, potentially affecting the accuracy of the observed relationships. Second, the diversity of respondents' occupations may result in varying levels of digital exposure, which can affect experiences of digital workload, technostress, and digital fatigue, and thereby limit the consistency and generalizability of the findings. Therefore, future research is recommended to use samples from the same sector to avoid bias or to compare the effects on this model between millennials and Generation Z. In addition, future research may examine the moderating effects of job resources, including social support, leadership style, job control, and individual abilities, such as resilience, digital skills, and adaptability.

Theoretically, this study contributes to the development of research on work behavior in the digital age while also providing an empirical basis for organizations to manage digital workload and stress among employees. Digital fatigue is understood as a specific response to psychological stressors rather than a consequence of all digital work demands. Therefore, the management of digital work demands on performance will differ between psychological and structural pathways. Another contribution lies in the novelty of recontextualizing the variables of workload, work stress, and fatigue in the conventional work context into the digital work context. The practical implications explain that managing digital work pressure requires a different approach depending on the type of demand. Organizations need to prioritize strategies to prevent digital fatigue, such as digital break policies, digital coping and self-regulation training, and psychological support to prevent an increase in technostress that reduces performance through digital fatigue. Meanwhile, improving job design and task distribution are strategies for managing digital workload.

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