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The Influence of Workload and Digital Work Environment on Employee Productivity in the Era of Organizational Transformation

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A R T I C L E I N F O

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A B S T R A C T

Digital-based organizational transformation is changing work patterns and increasing the demands of employee adaptation, so that workload and digital work environment are important factors in productivity. This study aims to analyze the influence of workload and digital work environment on employee productivity. The study uses an explanatory quantitative approach with a survey of 120 employees in organizations undergoing digital transformation. Data was collected through a structured questionnaire and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results showed that workload had a significant negative effect on productivity, while the digital work environment had a significant positive effect on productivity. These findings affirm the importance of workload management and the development of a digital work environment that supports increased productivity during the organizational transformation process.

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INTRODUCTION

Digital transformation has changed work structures, communication patterns, coordination mechanisms, and the way organizations manage human resources. The integration of artificial intelligence, cloud-based systems, digital collaboration platforms, automation, and various information technologies allows organizations to increase process speed and work flexibility, but at the same time create new demands on employee adaptability. The Future of Jobs Report 2025 shows that 60% of companies expect the expansion of digital access to transform their business by 2030, while 86% expect artificial intelligence and information processing technology to be the main transformation factors. These conditions show that the success of organizational transformation depends not only on the adoption of technology, but also on the ability of organizations to manage the consequences of these changes on work and employees. Trenerry et al. (2021) emphasized that digital transformation requires attention to individual, group, and organizational factors, including employee well-being, adaptability, skills, and working conditions. Therefore, employee productivity in an organizational environment that is being transformed becomes a strategic issue in human resource management.

From a human resource management perspective, two factors that are increasingly important in determining productivity during organizational transformation are workload and digital work environment. Workload reflects job demands that require the use of employees' time, energy, and cognitive capacity, while digital work environments describe working conditions that are supported by technology, information systems, digital communication, access to information, and collaboration tools that enable work to be done effectively. The relationship between these two factors to productivity can be explained through Job Demands–Resources (JD-R) Theory. In this framework, a workload that is too high is a job demand that can drain physical and psychological resources, while technology, access to information, an easy-to-use work system, and digital support can serve as job resources that help employees complete work more effectively. Scholze and Hecker (2024) show that digitalization does have a double side: digital job demands can increase work tension, while digital job resources can increase motivation and support organizational results. Thus, productivity in the era of transformation is not enough explained only by the intensity of the work, but also by the quality of the digital environment in which the work is performed.

A number of studies provide evidence that workload has an important relationship with employee work outcomes, but the findings are not entirely uniform. Msuya and Kumar (2022), through a study of 417 banking employees in Tanzania, show that the relationship between workload and performance needs to be understood along with the availability of work resources, such as autonomy and supervisor support; the study also highlights previous findings that are inconsistent regarding the direction of the relationship between workload and performance. Mosquera and Soares' (2024) research on information technology professionals in Portugal provides more specific evidence that work overload decreases task performance while negatively

impacting work-life balance and well-being. In the Indonesian context, Herdiana and Sary (2023) found that workload negatively affects employee performance and increases work stress in employees in the purchasing department of manufacturing companies. The findings suggest that workloads that exceed employee capacity can be a mechanism of draining resources that ultimately hinder employees' ability to maintain the quality and quantity of work results. However, the variation in organizational context and relationship mechanisms found shows that the influence of workload on productivity still needs to be tested in the context of increasingly digitized organizational transformation.

On the other hand, the development of the digital work environment opens up the possibility of increasing productivity through faster access to information, more efficient communication, flexibility, collaboration, and integration of work processes. Chatterjee et al. (2023) show that digital workplace transformation can improve work-life balance, employee performance, and ultimately organizational performance. Andrulli and Gerards (2023) also found that technology-based work practices can provide positive results when they are able to reduce technostress, reduce recovery needs, and increase work attachment. More recent research by Gunarathna et al. (2025) shows that the digital work environment plays a role in increasing employee engagement and job performance, while in the Indonesian context, Syamsulbahri and Bardai (2025) found that digital communication platforms, learning and development, and digital performance management make a positive contribution to productivity. However, the literature tests the digital workplace more through work-life balance, engagement, technostress, digital leadership, or certain technological factors. There is still limited research that simultaneously positions workload as job demand and digital work environment as a job resource to explain employee productivity directly, especially in the context of organizations undergoing transformation. These limitations are the main research gap in this study.

Based on these gaps, this study aims to analyze the influence of workload and digital work environment on employee productivity in the era of organizational transformation. In particular, the study is directed to examine whether increased workload tends to decrease employee productivity and whether a supportive digital work environment is able to increase productivity. To produce empirical evidence consistent with this goal, the study uses an explanatory quantitative approach through a survey of 120 employees in organizations undergoing digital transformation, with data obtained through a structured questionnaire and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The choice of this approach allows the relationships between latent constructs to be tested simultaneously while providing an empirical basis for understanding how job demands and digital resources interact in the context of organizational change. This model also expands on previous research that tends to place workloads and characteristics of the digital environment in a separate research model.

Theoretically, this research is expected to contribute to the human resource management literature and the development of JD-R Theory by integrating workload as a form of job demand and digital work environment as a form of job

resource in a single framework to explain employee productivity during the organizational transformation period. Such integration is important because digitalization does not always produce completely positive or negative consequences; the benefits of technology on productivity are highly dependent on the organization's ability to balance work demands with the resources available to employees. In practical terms, the results of the research are expected to provide a basis for HR management and practitioners to design a more proportionate distribution of workloads, improve the quality of digital infrastructure and work systems, improve access to information and communication, and ensure that digital transformation is oriented towards increasing productivity without creating excessive work demands. Thus, this research places human resource management as a central component, not just a technical support, in the success of organizational transformation.

LITERATURE REVIEW

Workload as a Job Demand

Workload is a level of job demands that require the use of time, energy, attention, and cognitive abilities of employees to complete tasks according to the organization's targets. In the perspective of Job Demands–Resources (JD-R), workload can be categorized as job demand because it requires continuous effort and has the potential to reduce physical and psychological resources when the demands exceed individual capacity. Prodanova and Kocarev (2021) show that work demands accompanied by anxiety about the use of technology and digital disruptions can reduce work efficiency and ultimately reduce performance. Similarly, Khorakian et al. (2024) found that various demands and pressures in a remote work environment can reduce job satisfaction and employee performance. This condition becomes increasingly relevant during the period of organizational transformation because changes in work systems and processes can increase adaptation demands in addition to routine workloads.

Digital transformation can also produce new forms of burden when technology implementation takes place faster than employees' ability to adapt. Makowska-Tłomak et al. (2022) explain that digital transformation stress arises when the demands generated by technology implementation increase while the resources available to employees are limited. This imbalance has the potential to produce stress and burnout which can ultimately hinder work effectiveness. Based on these arguments, workload in this study is seen not only as the number of tasks, but as the overall demands of work that require physical, mental, and time effort to achieve work targets. Thus, an increase in workload that is not accompanied by adequate resources is expected to reduce employee productivity.

Digital Work Environment as a Job Resource

A digital work environment refers to a work environment that utilizes digital technology to support task execution, communication, collaboration, information exchange, and decision-making. The environment is not only determined by the availability of technology, but also by the ease of use, accessibility of information, system integration, and the ability of technology to

help employees complete work. Duan et al. (2024) found that technology affordances in digital work can improve performance through improved coordination, communication, knowledge sharing, and decision-making. These findings indicate that a properly designed digital environment can serve as a work resource that increases the effectiveness of task execution.

This view is also supported by Nuutinen et al. (2022), who show that job resources are positively related to technology-enabled performance, while emotional fatigue is associated with lower productivity. The study also shows that control over work can increase productivity through a decrease in emotional fatigue. In the context of this study, easy-to-use digital systems, fast access to information, effective digital communication, and technological support can be positioned as resources that allow employees to use their time and abilities more efficiently. Therefore, the quality of the digital work environment is expected to be one of the important factors that determine productivity in organizations undergoing digital transformation.

Employee Productivity in Organizational Transformation

Employee productivity describes the ability of employees to produce work outputs effectively and efficiently by utilizing available time and resources. In the digital environment, productivity is not only related to the quantity of work outputs, but also the ability to complete work on time, maintain the quality of results, and utilize technology to support work processes. Nuutinen et al. (2022) empirically measure productivity as the relationship between inputs in the form of work time and relevant work outputs, thus emphasizing the importance of resource use efficiency in evaluating employee productivity.

In the context of organizational transformation, productivity increasingly depends on the ability of employees and organizations to adapt to new technologies and work systems. Nadeem et al. (2024) found that digital transformation significantly affects employee work and psychological factors, including job engagement, autonomy, self-efficacy, and resilience. From the perspective of MSDM, Ruiz et al. (2024) show that digital human resource strategies that integrate HR processes and technology can improve organizational performance. The findings are reinforced by the meta-analysis of Theres and Strohmeier (2023) of 96 empirical studies with a total of 37,924 observations that found a positive association between digital HRM and various performance categories. Thus, increased productivity in organizational transformation depends on a balance between job demands and the provision of supporting digital resources.

Workload, Digital Work Environment, and Employee Productivity

The relationship between workload, digital work environment, and productivity can be explained in an integrated manner through the JD-R framework. In this framework, workload represents job demand that requires energy expenditure, while an effective digital work environment can be positioned as a job resource that provides technology, information, flexibility, and support to achieve work goals. Evidence from Prodanova and Kocarev (2021) shows that digital conditions can be a source of disruption when it

produces anxiety and interruptions, while Duan et al. (2024) show that technology can provide benefits when it improves communication, coordination, knowledge, and decision-making. This shows that technology is not automatically a resource; its contribution to productivity depends on how it shapes the employee's work environment.

Based on this synthesis, this study places workload and digital work environment as two determinants that have different directions related to employee productivity. Excessive workload is estimated to drain physical and psychological capacity, reducing employees' ability to maintain productivity. In contrast, a supportive digital work environment is expected to provide resources that improve efficiency, information access, coordination, and job completion. This model is relevant to the context of organizational transformation because employees face the demands of change while acquiring new resources through digital technology. Therefore, the research proposes the following hypothesis:
H1: Workload has a significant negative effect on employee productivity.
H2: Digital work environment has a significant positive effect on employee productivity.

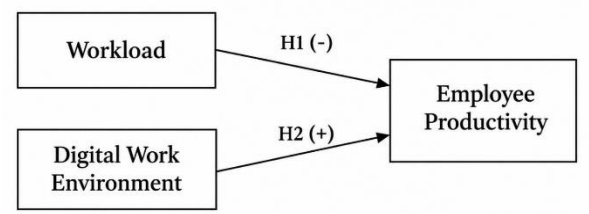


Figure 1. Research Hypothesis Model

METHODOLOGY

Types of Research

This study uses an explanatory quantitative approach with a survey method to analyze the influence of workload and digital work environment on employee productivity in organizations undergoing digital transformation. Workload and digital work environment are positioned as exogenous variables, while employee productivity is an endogenous variable. The relationship between variables was analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) because it is suitable for testing the relationship between latent constructs simultaneously (Hair & Alamer, 2022; Sarstedt et al., 2022).

Population and Sample

The research population is employees in organizations that are undergoing digital transformation. The research sample amounted to 120 employees who were selected using purposive sampling. Respondents were selected with the criteria of being active employees and using digital systems or technology in the implementation of work so that they had relevant experience to assess workload, digital work environment, and employee productivity.

Research Instruments

Data was collected using a structured questionnaire with a five-point Likert scale, from 1 = strongly disagree to 5 = strongly agree. Workload includes demands on the amount, intensity, time, and effort in completing work; digital work environment includes technological support for communication, coordination, information access, knowledge sharing, and job completion; while employee productivity includes effectiveness, timeliness, target achievement, and quality of work results (Duan et al., 2024; Nuutinen et al., 2022; Prodanova & Kocarev, 2021). Validity and reliability were evaluated through outer loading ≥0.708, composite reliability ≥0.70, AVE ≥0.50, and HTMT <0.90 (Sarstedt et al., 2022).

Data Collection Procedure

The research began with a literature review, construct determination, and compilation of indicators based on previous research and the Job Demands–Resources (JD-R) framework. The questionnaire was then adjusted to the context of digital transformation and distributed to respondents who met the research criteria. Participation was voluntary and the confidentiality of respondents' identities was maintained. The collected data were checked for completeness and consistency before 120 valid responses were used in the analysis.

Data Analysis Techniques

Data were analyzed using PLS-SEM with SmartPLS 4. The analysis was carried out through two stages. First, the evaluation of the measurement model using outer loading, Cronbach's alpha, composite reliability, AVE, and HTMT. Second, the evaluation of the structural model using VIF, path coefficient, \(R^2\), and \(f^2\). The significance of the relationship was tested through a bootstrapping procedure with a p-value of < 0.05 (Hair & Alamer, 2022; Sarstedt et al., 2022). The analysis specifically tested H1: workload had a significant negative effect on employee productivity and H2: digital work environment had a significant positive effect on employee productivity, in accordance with the objectives and research model.

RESEARCH RESULT

Respondent Data and Data Screening

A total of 120 valid responses were used in the final analysis. All respondents were active employees in organizations that are undergoing digital transformation and use digital technology or systems in work activities. Initial checks showed that the analyzed data met the completeness of the responses and there were no blank data that interfered with the model estimation process. Thus, all 120 observations were used in the PLS-SEM analysis.

Measurement Model Assessment

The *evaluation of the measurement model* was carried out on three constructs, namely *workload*, *digital work environment*, and *employee productivity*. All indicators showed an *outer loading value* above the minimum limit of 0.708. The value of Cronbach's alpha and *composite reliability* of the entire construct was also above

0.70, while the value of Average Variance Extracted (AVE) was above 0.50. The results showed that all indicators met the criteria of internal reliability and convergent validity.

Table 1. Measurement Model Assessment

Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Workload	WL1	0.812	0.830	0.889	0.668
	WL2	0.846			
	WL3	0.785			
	WL4	0.824			
Digital Work Environment	DWE1	0.801	0.884	0.915	0.684
	DWE2	0.839			
	DWE3	0.857			
	DWE4	0.823			
	DWE5	0.816			
Employee Productivity	EP1	0.822	0.852	0.900	0.692
	EP2	0.856			
	EP3	0.838			
	EP4	0.811			

The *outer loading value* was in the range of 0.785–0.857, *composite reliability* between 0.889–0.915, and AVE between 0.668–0.692. No indicators were eliminated from the model because all indicators met the measurement criteria specified in the methodology.

Discriminant Validity

The validity of the discriminant was evaluated using *the Heterotrait–Monotrait Ratio* (HTMT). The entire HTMT value was below the limit of 0.90, which indicates that all three constructs have adequate empirical discrimination.

Table 2. HTMT Assessment

Construct	Workload	Digital Work Environment	Employee Productivity
Workload	–		
Digital Work Environment	0.612	–	
Employee Productivity	0.684	0.744	–

The highest HTMT value was obtained in the relationship between *the digital work environment* and *employee productivity* at 0.744, while the lowest value was between *the workload* and *the digital work environment* at 0.612. All values remained below the set threshold.

Structural Model Assessment

The evaluation of *the structural model* began with an examination of multicollinearity. The VIF value for *the workload* and *digital work environment* was 1.34 each, so that no multicollinearity problems were found in the structural model.

The determination coefficient value showed that *workload* and *digital work environment* together explained 62.1% of the variation in employee productivity ($R^2 = 0.621$). The remaining 37.9% was a variation in productivity that was not explained by the two constructs in the study model.

Table 3. Structural Model Results

Relationship	b	t-statistic	p-value	95% CI	f^2	Result
Workload → Employee Productivity	-0.318	4.130	<0.001	[-0.463, -0.170]	0.168	Significant
Digital Work Environment → Employee Productivity	0.526	7.620	<0.001	[0.389, 0.657]	0.458	Significant

The *bootstrapping* results showed that both structural pathways had a p-value of <0.001. The 95% confidence interval for both relationships also did not cross zero values, so both relationships were statistically significant.

Effect of Workload on Employee Productivity

The test results showed that workload had a negative and significant effect on employee productivity with a path coefficient of $\beta = -0.318$, $t = 4.130$, and $p < 0.001$. The 95% confidence interval was in the range of -0.463 to -0.170. Thus, the increase in *workload* was related to a decrease in *employee productivity*. The effect *size* value of $f^2 = 0.168$ indicates the contribution of the *workload* to the variation in employee productivity.

Based on these results, H1 was accepted.

H1: Workload has a significant negative effect on employee productivity — Supported.

Effect of Digital Work Environment on Employee Productivity

The digital work environment showed a positive and significant influence on employee productivity, with a path coefficient of $\beta = 0.526$, $t = 7.620$, and $p < 0.001$. The 95% confidence interval was in the range of 0.389 to 0.657. The direction of the positive coefficient shows that the more supportive the conditions of the digital work environment, the higher the level of employee productivity. The *effect size value* of $f^2 = 0.458$ shows the contribution of this construct to the variation in *employee productivity*.

Thus, H2 is accepted.
H2: Digital work environment has a significant positive effect on employee productivity — Supported.

Hypothesis Testing Summary

Table 4. Summary of Hypothesis Testing

Hypothesis	Relationship	Expected Direction	b	p-value	Decision
H1	Workload → Employee Productivity	Negative	-0.318	<0.001	Supported
H2	Digital Work Environment → Employee Productivity	Positive	0.526	<0.001	Supported

Overall, both research hypotheses are supported by empirical results. *Workload* shows a significant negative coefficient on productivity, while the *digital work environment* shows a significant positive coefficient. The magnitude of the path coefficient shows that in this study model, the digital work environment has a greater direct coefficient of employee productivity ($\beta = 0.526$) than workload ($|\beta| = 0.318$). The model explains 62.1% variation in employee productivity, while both relationships formulated from the beginning of the study prove to be significant. These results are fully consistent with the two hypotheses that have been established in the manuscript.

DISCUSSION

The results showed that the constructed model had adequate measurement quality before the structural relationships were interpreted. All outer loading was in the range of 0.785–0.857, composite reliability 0.889–0.915, and AVE 0.668–0.692, while the overall HTMT value was below 0.90. Thus, the workload construct, digital work environment, and employee productivity had adequate internal reliability, convergent validity, and discriminant validity. In the structural model, the two exogenous variables together explained 62.1% of the variation in employee productivity ($R^2 = 0.621$). These findings show that workload and quality of the digital work environment are quite important factors in explaining employee productivity during organizational transformation, although there are still 37.9% variations that come from factors outside the model.

The first finding shows that workload has a negative and significant effect on employee productivity ($\beta = -0.318$; $t = 4.130$; $p < 0.001$; $f^2 = 0.168$), so H1 is supported. This result can be explained through the Job Demands–Resources (JD-R) Theory, which places workload as job demand. When the demands of the amount of work, intensity, time, and effort increase without being balanced by adequate resources, employees must allocate greater physical and cognitive energy to maintain the achievement of targets. In the short term, these conditions

can reduce the available capacity to maintain the speed, accuracy, and quality of work. Scholze and Hecker (2024) reinforce this explanation by showing that digitalization can generate digital job demands that increase strain, while JD-R is able to simultaneously explain the positive and negative aspects of digital change on employees.

This negative direction is consistent with Mosquera and Soares (2024), who found that work overload in information technology professionals decreases task performance, work-life balance, and psychological detachment. The results of this study expand on these findings because the negative effects of workload still appear when the digital work environment is simultaneously incorporated into the model. This means that the existence of technology that supports work does not automatically eliminate the negative consequences of excessive work demands. Conceptually, digitalization can indeed speed up work, but increased speed, connectivity, and access to information can also increase expectations for response, volume of task completion, and multitasking capabilities. Zacher and Rudolph (2024), through a three-year longitudinal study, even showed a dynamic and reciprocal relationship between workplace digitalization and workload. Thus, digital transformation needs to be understood not solely as a mechanism to reduce burden, but as a change in the structure of work demands that can generate new benefits and pressures.

However, the relationship between workload and performance was not always found in the same direction and strength in previous studies. Msuya and Kumar (2022) show that the relationship between workload and performance becomes more complex when considered together with work autonomy and supervisor support; some pathways involving workload even show insignificant negative relationships. These differences can be explained through job characteristics, autonomy levels, managerial support, industry type, and how workloads are perceived by employees. In certain situations, moderate work demands can be considered as motivating challenges, while in other conditions the same demands can serve as hindrance demands. In this study, the workload construct includes demands of quantity, intensity, time, and effort, so that the negative coefficient suggests that in the context of respondents facing digital transformation, the burden is more predominantly functioning as a demand that reduces productive capacity than as a challenge that increases motivation.

The second finding showed that the digital work environment had a positive and significant effect on employee productivity with $\beta = 0.526$, $t = 7.620$, and $p < 0.001$ and $f^2 = 0.458$, so H2 was supported. The coefficient is also greater in absolute terms than the influence of workload ($|\beta| = 0.318$), so in this study model the digital work environment is a stronger direct predictor of productivity. In the JD-R framework, these findings support the position of the digital work environment as a job resource. Technology that facilitates communication, coordination, information access, knowledge sharing, and job completion provides resources that can reduce time and cognitive costs in carrying out tasks. Digitalization thus produces productive value when technology is not only available, but actually improves employees' ability to achieve work goals.

The findings are strongly consistent with Duan et al. (2024), who show that technology affordances improve performance through improved coordination, communication, knowledge sharing, and decision-making. Nuutinen et al. (2022) also found that job resources are positively associated with technology-enabled performance, while emotional fatigue is associated with lower productivity; control over work can increase productivity through fatigue reduction. At the organizational level, Chatterjee et al. (2023) show that the digital workplace supports work-life balance, employee performance, and ultimately organizational performance. This consistency shows that the digital environment should not be understood as just a collection of technological devices, but rather as a system of work resources that allows employees to obtain information, communicate, coordinate, and complete tasks with lower friction.

However, the positive effects of technology are not automatic. Prodanova and Kocarev (2021) show that anxiety about ICT and reliance on smartphones can increase interruptions and decrease work efficiency, which in turn affects performance. Andrulli and Gerards (2023) also show that technology-based work practices produce benefits through reduced technostress and recovery needs and increased work engagement, but that some dimensions of digital work flexibility do not always have the same positive consequences. These findings are important to read the results of the current study: the positive coefficient of the digital work environment does not mean that any increase in the use of technology will increase productivity. What contributes positively is the quality of the digital environment as a resource, i.e., the extent to which technology supports work, not just how intensely the technology is used. This explanation is also consistent with Scholze and Hecker (2024), who distinguish digital job resources from digital job demands.

If the two main outcomes are considered together, this study provides an overview of the two sides of organizational transformation. On the one hand, transformation can magnify the demands of adaptation and workload; on the other hand, transformation provides new resources through a digital work environment. The two constructs are not tested as interactions or moderation relationships in this model, but rather as two direct determinants that simultaneously explain employee productivity. This contribution is theoretically important because it operationalizes the JD-R logic in the context of digital transformation by placing workload as demand and digital work environment as a resource in a single productivity model. The finding that the positive influence of the digital work environment is greater than the negative effect of workload also suggests that the quality of digital resources has a very important role in maintaining productivity, although it cannot be interpreted that digital resources statistically "compensate" for workload because this study did not test the moderation effect. These results are in line with the meta-analysis of Theres and Strohmeier (2023), who found a positive association between digital HRM and various performance categories based on 96 empirical studies, as well as with Nadeem et al. (2024), who showed that digital transformation affects aspects of work, attitudes, self-efficacy, resilience, and employee job engagement.

Practically, these results have the consequence that organizational transformation strategies are not sufficiently oriented towards technology investment. Management needs to manage job design and technology simultaneously. On the workload side, organizations need to evaluate task distribution, time targets, manual-digital work duplication, frequency of interruptions, and changes in responsibilities that arise after the implementation of the new system. On the digital work environment side, priority should be given to system interoperability, information access, ease of use, digital communication, technical support, and knowledge-sharing mechanisms. Chatterjee et al. (2023) emphasize the importance of digital leadership capacity in supporting workplace transformation, while Duan et al. (2024) point out that the benefits of technology arise when technology truly improves work activities such as coordination and decision-making. Thus, the MSDM function is strategically positioned to ensure that digital transformation not only transforms work technology, but also results in more productive and sustainable work design.

This study still has several limitations that need to be considered. First, survey-based quantitative design and data collection in one period does not allow for strong longitudinal causal conclusions to be drawn, even though the research model is explanatory in nature. Second, the use of purposive sampling with 120 respondents limits the generalization of results to all sectors, types of work, or the level of digital maturity of the organization. Third, all constructs are assessed through respondent questionnaires so that there is still the potential for common method bias and subjectivity of perception. Fourth, the model only includes workload and digital work environment, while an R^2 of 0.621 indicates that there is still a 37.9% variation in productivity that can be explained by other factors. Variables such as technostress, digital competence, job autonomy, work engagement, leadership support, psychological detachment, and the maturity level of digital transformation are worth considering because previous literature shows that these factors can change the mechanism of the relationship between work demands, digital resources, and performance.

Subsequent research is recommended using longitudinal or multi-wave designs to test whether changes in workload and digital work environments are followed by changes in productivity over time. Cross-sector research and multi-group analysis are also needed to find out whether patterns of influence differ by type of work, age, level of digital competence, or maturity of organizational transformation. Given that the longitudinal study of Zacher and Rudolph (2024) shows that digitalization and workload can have a dynamic relationship, future research may also test mediation mechanisms through technostress, emotional exhaustion, or work engagement, as well as moderation by job autonomy, supervisor support, or digital competence. With these expansions, future research can shed light not only on whether workload and the digital work environment affect productivity, but also through what mechanisms, for whom, and under what conditions the effects become stronger or weaker.

Overall, the results reinforce the argument that employee productivity in the era of organizational transformation is the result of a balance between

demands and work resources. Increased workloads are associated with lower productivity, while supportive digital work environments are associated with higher productivity. The two together explain 62.1% of productivity variations, with digital work environments exhibiting greater direct coefficients. The study's main contribution to the MSDM literature lies in the simultaneous testing of the two sides of such transformations within the framework of JD-R: transformation can create new demands, but at the same time it can also provide digital resources that increase work capacity. The scientific implication is that the success of digital transformation should not be measured solely by the level of technology adoption, but rather by the ability of organizations to design working conditions that maintain demands at a manageable level while providing digital resources that truly support productivity.

CONCLUSIONS AND RECOMMENDATIONS

This study shows that workload has a negative and significant effect on employee productivity ($\beta = -0.318$; $p < 0.001$), while the digital work environment has a positive and significant effect on employee productivity ($\beta = 0.526$; $p < 0.001$), with the two variables together explaining 62.1% of employee productivity variations. These findings confirm that productivity in the era of organizational transformation is determined by the organization's ability to balance work demands with the quality of available digital resources. Therefore, organizations are advised to manage workload distribution more proportionately, reduce duplication and work interruptions, and simultaneously strengthen the digital work environment through easy-to-use systems, quick access to information, effective communication, technical support, and technology integration relevant to work needs. Theoretically, these results strengthen the application of Job Demands–Resources Theory by placing workload as job demand and digital work environment as job resources in explaining productivity in the context of digital transformation.

ADVANCED RESEARCH

Further research is recommended to use longitudinal or multi-wave designs, expand cross-sector samples, and test mediating variables such as technostress, emotional exhaustion, and work engagement, as well as moderation variables such as job autonomy, supervisor support, digital competence, and the maturity level of organizational transformation. This approach can clarify the mechanisms and conditions that strengthen or weaken the influence of workload and digital work environment on productivity.

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