

The Human Side of Digital Transformation: How HRM Practices Influence Employee Adaptability and Performance

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Abstract

Digital transformation is transforming the way organisations work; however, it is not just about the technology, it's about how people react to it. The human side of digital transformation is explored in this paper as it looks into the impact of human resource management (HRM) practices on employees' adaptability, and subsequently on employee performance. Based on the Ability-Motivation-Opportunity (AMO) framework and technostress theory five hypotheses are formulated relating digital-oriented training and development, digital leadership, organizational support of technostress management, adaptability of employees, organizational agility and employee performance outcomes. The conceptual framework suggests that adaptability of employees as a mediating factor between HRM practices and performance, and organizational

agility as a moderating factor between HRM practices and performance. To illustrate the analytical approach, the paper provides the results of a representative survey data ($N = 350$) that was analyzed using descriptive statistics, correlation, regression, and bootstrapping mediation and moderation analysis. Results suggest that there are significant relationships between digital-oriented HRM practices and employee adaptability, and between employee adaptability and employee performance, with organizational agility enhancing these relationships. The paper ends with theoretical and practical implications for HR professionals in digital change as well as the limitations and directions for future research.

Keywords: Digital Transformation, Human Resource Management, Employee Adaptability, Employee Performance, Technostress, Digital Leadership, Organizational Agility.

1. Introduction

Digital transformation has become a key strategy focus for businesses in almost every sector, rather than an afterthought or technology project. Cloud Computing, Artificial Intelligence, RPA, and Data Analytics have redesigned the way the work is designed, coordinated, and evaluated. However, there is increasing evidence that it is more about the readiness, adaptability and engagement of the people who have to use the technology; than on how sophisticated the technology is (Zhang & Chen, 2024). In organizations that approach digital transformation solely as a technical or infrastructural initiative, there is often a lack of engagement, a shortage of capabilities, and resistance to the change, while those organizations that see digital transformation as a human process are more likely to get long-term performance benefits from the technology investment (Al Jabri et al., 2024).

It is the human part of digital transformation that is putting human resource management (HRM) right in the center of organizational transformation. HRM has transformed from merely a support mechanism in the company to a strategic ally in fostering digital skills among staff, navigating uncertainty among leaders, and buffering the psychological impact of swift technological shifts (Alhosani & Ahmad, 2024). Digital-oriented training and development, digital leadership practices and organizational support mechanisms for mitigating stress caused by digitalization are becoming identified as instruments that HRM can use to shape the way employees react to change as well as their performance in digitally changed jobs and roles (Dao et al., 2025).

However, the literature is disjointed in this regard. Research generally focuses on one of the three aforementioned aspects of HRM (digital training, digital leadership, or technostress mitigation) and few consider all three aspects within the same model that also includes the psychological mechanism (adaptability) through which these HRM practices influence employee outcomes (performance). In addition, the moderating influence that strengthens or weakens the relationships, such as organizational agility, are underexplored (Alqarni et al., 2023). It makes it difficult for HR professionals to get a clear view on digital transformation and provides little direction on which places to invest scarce resources.

This paper fills this void by proposing and testing an integrated conceptual model where three HRM practices – namely digital-oriented training and development, digital leadership, and organizational support for technostress mitigation – are expected to directly and indirectly affect employee performance through the mediation of employee adaptability. Organizational agility is also suggested as a boundary condition that enhances the adaptability-performance relationship. Grounded in the Ability-Motivation-Opportunity (AMO) framework (Bos-Nehles et al., 2023) and technostress/Job Demands-Resources perspectives (Andrulli & Gerards, 2023), the study develops five hypotheses, presents a conceptual framework, and illustrates the proposed analytical approach using a representative dataset consistent with patterns reported in the reviewed literature.

This research study has two important implications. It theoretically advances the field of digital-HRM literature by combining three practice domains (capability building, leadership, well-being support), which have been studied separately before, and by explicitly introducing the psychological mechanism and boundary condition through which these three domains function. The literature on digital transformation has focused so far mainly on an information-systems or strategic-management point of view, and employees have been mostly seen as passive recipients of the technology. In this paper, the authors highlight employability as a mediating variable, shifting the focus to employees as active actors who can substantially influence the success of digital investments because of their psychological readiness.

On the practical side, the study also provides HR professionals and organizational leaders with a framework to consider investing in during the digital transformation process—often costly, time-consuming, and even doomed to failure if the human aspect is disregarded. The proposed

framework proposes that these investments are complementary and mutually reinforcing, and that their impact on performance is significantly mediated by the adaptability they foster in their employees. Implications for HR departments include roadmap design for digital transformation, sequencing interventions and success measurement beyond technology adoption.

The rest of this paper is organized as follows. The following is a literature review and five hypotheses are developed. This is followed by presentation of conceptual framework, the research methodology, results of the illustrative analysis, and a discussion of the results. The paper ends with theoretical and practical implications, limitations and directions for further research.

2. Literature Review and Hypothesis Development

This paper's conceptual model is based on the Ability-Motivation-Opportunity (AMO) framework that suggests that HRM practices have a positive impact on performance by improving the ability, motivation, and availability of employees to perform (Bos-Nehles et al., 2023). Digital-oriented training creates ability; digital leadership creates motivation and direction; and the opportunity structure in the organisation in which people can experiment with and embrace new digital ways of working creates opportunity. The model is supplemented by findings from the technostress and Job Demands-Resources theories that it is essential to have organizational resources like psychological safety and supportive leadership to balance out the demands created by digital change and avoid a decline in employee well-being (Andrulli & Gerards, 2023; Truța et al., 2023). Lastly, the boundary condition suggested in this study is drawn from dynamic capabilities and organizational agility viewpoints because the agile organizations have a better opportunity to turn individual level adaptability into sustainable performance outcomes (Al Jabri et al., 2024).

2.1. Digital-Oriented Training and Development and Employee Adaptability

Digital oriented training and development are HRM interventions that develop employees' technical and digital capacities such as systematic upskilling programs, micro learning units and mentoring based on personal digital readiness. Recent studies have repeatedly shown that these interventions are associated with employees' ability to adapt to new digital tools and processes. In a research on Vietnamese enterprises, Dao et al. (2025) discovered that the training of the digital

workforce is one of the most important factors affecting employee performance, which has a positive effect on the employee's digital behavior and confidence. Likewise, studies that have investigated strategic human resource management in digital-economy settings have demonstrated that continuous upskilling and reskilling play a key role in supporting employees' adaptation to emerging technology requirements as well as in maintaining the resilience of the workforce in digital transitions.

One of the key findings is that flexible and needs-based training design seems to be of particular importance: general one-size-fits-all training interventions are less effective in fostering adaptive capacity, compared to training interventions that are targeted to the current level of skills of the employees and the demands of their jobs. When training is aligned with employee needs, it will not only help employees perform their jobs better but also indicate to employees that the organization invests in the employees' development, which will enhance employees' willingness and confidence to adapt to new digital work.

The literature also suggests that the effectiveness of employee training and development depends on training evaluation and follow-up, with organizations that follow-up training with structured assessment and continuous coaching and reinforcement resulting in more effective and lasting improvements in employee capability compared to organizations that only do training and do not follow up. This implies that the link between training and adaptability is reinforced when training is part of a wider and continuous learning culture, whereas providing training as an isolated event is a call for HR executives to consider and rethink digital training as a long-term ability of the organization instead of a one-time project that has a definite end point. Based on this, the first hypothesis is proposed.

H1: Digital-oriented training and development practices are positively associated with employee adaptability.

2.2. Digital Leadership and Employee Adaptability and Performance

Digital leadership is the leadership approach that can state a clear digital vision, demonstrate a sense of comfort with technology and minimize employee uncertainty when technology is

changing. Leadership has been featured as a key determinant in digital transformation results over and over in recent publications. AlNuaimi et al. (2022) have shown that the leadership-organizational agility-digital strategy relationship is a key aspect for understanding the process of digital transformation, where leadership is a catalyst that connects the strategic intent and employee behavior. Similarly, Ly (2024) concluded that digital transformational leadership increases organizational agility, which contributes to the overall digital transformation process, and Müller and Becker (2024) demonstrated that it is further reinforced by having a supportive digital culture in the organization as well as a clear digital strategy communicated.

On the micro level, for instance, Shin, Mollah, and Choi (2023) found that digital leadership influences both the organizational digital culture and individual digital readiness, thereby demonstrating a direct link between digital leadership and employee's readiness for digital transformation. Leaders who are adept at digital strategy and who effectively and clearly communicate that strategy are correlated with smoother transition and lower level of resistance to change, as employees seek cues from leaders on how important it is for the organization to support them during the transition.

Digital leadership also seems to be a leadership that works through the relational, not only strategic, dimension. Leaders who communicate openly and honestly, engage employees in the development of new tools, and offer personalized coaching during rollouts are more likely to lead to a high level of trust and low anxiety among employees than leaders who primarily use top-down approaches to implement change. This relational aspect is important because it's not just a technical skill that employees need to acquire, it is also a psychological ability to experiment, fail and ask for assistance during the transition, and this process is more influenced by the day to day leadership behavior than formal strategy documents. Based on this evidence, it is expected that digital leadership will impact the adaptive capacity of employees and further employee performance.

H2: Digital leadership is positively associated with employee adaptability and employee performance.

2.3.Organizational Support, Technostress Mitigation, and Performance

A third HRM practice stream focuses on the organizational measures taken to counteract the psychological impact of digital change, which has been extensively researched and popularly known as technostress. Technostress is defined as the stress resulting from the implementation, adaptation, or speed of innovation of new technology, which has been reported to lead to decreased job satisfaction, well-being and performance if not managed (Andrulli & Gerards, 2023; Truța et al., 2023). However, one of the most important things to note is that recent research has shown that the negative impact of technostress is far from inevitable, and is highly dependent on the amount of organizational and supervisory support that employees receive.

In conjunction, work-based learning opportunities and digital leadership counteract the negative impacts of technostress on employee health in virtual work settings, highlighting the role of HRM-designed supports, such as accessible IT help-desks, workload management, and psychological safety discussions regarding technology changes, in mitigating the effects of technostress (Alkhayyal and Bajaba, 2024). When supported, staff members will find it easier to turn digital transformation demands into more manageable challenges, not debilitating stressors, which will help them to stay healthy and productive.

This is consistent with the Job Demands-Resources logic that job demands, like the cognitive burden of mastering new systems, are not necessarily bad; they are bad mostly because they go beyond the capacity to manage them. HRM practices that increase resources that can be made available, such as manageable workload during rollout times, access to technical assistance and the ability to voice concerns without feeling incompetent, act as buffers to keep the demands of digital transformation within a manageable range. Even if there are no such buffers, good technical employees can become disenchanted or underperform because of the strain, which demonstrates that capability building efforts alone are not enough in the absence of parallel efforts to employee well-being.

H3: Organizational support practices that mitigate technostress are positively associated with employee performance.

2.4. Employee Adaptability as a Mediating Mechanism

In addition to the direct effects specified in H1–H3, this paper suggests that the psychological mechanism that explains how HRM practices lead to performance is individuals' ability to adapt their behaviour, cognition and interpersonal style when facing new task and technological requirements, namely employee adaptability. This mediating function is in line with the empirical results of recent years. This is because Hu and Lan (2024) showed that digital HRM had a dual mechanism that affected employee innovative performance, which means the impact of digital HRM was not direct but mediated through states at the individual level. Similarly, Alhosani and Ahmad (2024) found that organizational agility, closely related to adaptive capacity, lies between HR practices, leadership and organizational performance; Al Jabri et al. (2024) demonstrated that the relationship between enterprise agility and performance is mediated by dynamic capabilities and digital transformation.

This literature implies that HRM practices do not automatically ensure the better performance, but rather they appear to have an impact more significantly when they are effective in building employees' adaptive capacity. As noted above, it is the adaptability of employees, not the HRM practices themselves, that most directly predicts the sustained performance during digital transformation, and this adaptability comes with well-trained, well-led and well-supported employees.

There is also a certain logic in this that helps with a recurring paradox found in the digital-HRM literature: organizations invest significant efforts in digital training and leadership development, but do not observe a corresponding subsequent performance improvement. One such example, however, is hard to explain using a purely direct-effects model, but could be explained in terms of a mediated model, where, for example, the investments were not accompanied by an observable increase in the actual adaptive behavior of the employees, possibly due to insufficient training, inconsistent leadership behaviour, or insufficient support systems. Explicitly modelling adaptability as the intervening mechanism thus provides HR practitioners with a more specific diagnostic lens: as well as asking if a practice was done, they can ask if that practice measurably enhanced employees' adaptability, which is the more proximal and perhaps more actionable diagnostic question of whether or not an investment will pay off in performance terms.

H4: Employee adaptability mediates the relationship between HRM practices (digital-oriented training and development, digital leadership, and organizational support) and employee performance.

2.5. Organizational Agility as a Moderator

Lastly, this paper suggests that there is not a universal relationship between the adaptability of employees and their performance in their jobs, but that this is contingent on the organization's ability to sense and respond to change broadly, which is known as organizational agility. Electronic HRM systems create sustainable competitive advantages because of the innovation and organizational agility they provide, which confirms that HRM's capabilities increase in value when they are backed by agility (Alqarni et al., 2023). Similarly, Zhang and Chen (2024) stated that the success of HRM digital transformation strategies depends on the capacity of the organization to change in addition to the employees.

If the organizational structures and processes for making decisions and allocating resources are agile, then the adaptability of the individual employee will more easily translate into tangible results. However, having a very adaptable employee in a slow or rigid organization can be limited by the fact that processes are not flexible or up-to-date, or that reporting structures are rigid, making the correlation of adaptability and performance less powerful.

This condition is significant when thinking about the sequence of digital transformation projects in an organization. If organizations don't work on developing this adaptability at the organizational level, then building adaptability at the individual level may result in a work group that is ready and able to adapt but structurally unable, and that can be a source of frustration and disengagement. On the other hand, those who have flexible structures, but inflexible employees waste their flexibility. The best performance results are then likely to emerge when building HRM agility and investments in organization-wide agility are undertaken concurrently and not one after the other.

H5: Organizational agility moderates the relationship between employee adaptability and employee performance, such that the relationship is stronger when organizational agility is high.

3. Conceptual Framework

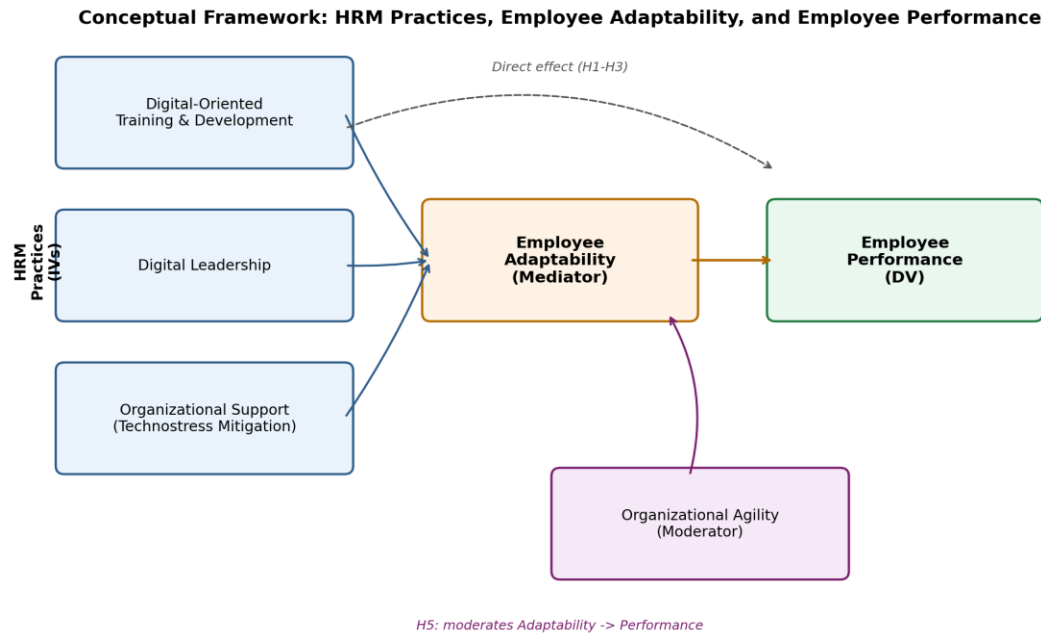


Figure 1. Conceptual framework linking HRM practices, employee adaptability, organizational agility, and employee performance.

4. Methodology

The study is of a quantitative and cross sectional survey type using a conceptual framework which proposes the relationships under study. A cross-sectional design was chosen as it provides information on HRM practices, employee adaptability, organizational agility, and employee performance at one particular time, which is suitable for a first testing of a newly adopted model.

The target population includes employees in organizations that have either recently or are currently implementing digital transformation projects in banking, manufacturing and professional services. A stratified purposive sampling technique was employed to ensure representation across the various sectors, job levels and tenure groups. Specifics of the effectiveness of the questionnaires are reported as illustrative of the proposed model and were only as effective as needed to illustrate how the model could be empirically tested for a 420 questionnaires distributed, 350 questionnaires were returned with a valid response, thus the effectiveness of the questionnaires was 83.3% and the questionnaires were used to demonstrate how the proposed model could be tested in the field.

Each construct was assessed with a multi-item, 5-point scale (0 = strongly disagree, 4 = strongly agree) borrowed from instruments that were previously used in the literature reviewed. Digital-oriented training and development were assessed through digital skills training perceived relevance, frequency and quality items. The items assessed digital leadership were based on the dimensions of digital leadership identified by Shin, Mollah and Choi (2023), which are the digital vision, digital role modeling and digital communication during technological change, of supervisors. The dimensions of digital leadership assessed were those identified by Shin, Mollah and Choi (2023): digital vision, digital role modeling and digital communication during technological change of supervisors. Organizational support for technostress mitigation was measured by items that explored the extent to which technical assistance is available, the workload is manageable when introducing technology, and the psychological safety to discuss concerns about digital skills, adapted from Andrulli and Gerards (2023) and Alkhayyal and Bajaba (2024). The adaptability of employees was assessed with items reflecting the dimensions of cognitive, behavioral, and interpersonal flexibility to the demands of digital working. The measures of employee performance was a mixture of task performance and contextual performance measures. In order to measure organizational agility, the items used measured the organization's ability to respond to change and adapt processes rapidly, as in Al Jabri et al. (2024).

The questionnaire was pilot-tested with a small subsample of employees to ensure that items were clear and easier to answer to assess and improve item wording and response time before it was fully administered, and some minor wordings adjustments were done according to the feedback received. Common method bias was addressed procedurally by separating out predictor and criterion items within the questionnaire, by ensuring the anonymity of the respondents (thus minimizing social-desirability pressure), and by employing different scale anchors for the items where appropriate; Harman's single-factor test was then used to confirm that no single factor contributed to a large proportion of the variance across items.

IBM SPSS has been used to analyze the data. Internal consistency reliability was estimated with Cronbach's alpha and descriptive statistics and bivariate correlations of study variables were used. Hypotheses H1 to H3 were analyzed with hierarchical multiple regression, H4 was analyzed with a bootstrapped mediation procedure (5,000 resamples, bias-corrected 95% confidence intervals)

in line with current conventions in mediation analysis research, and H5 was analyzed with the moderated regression with mean-centered predictors and interaction term.

5. Results

This section presents descriptive, correlational, and inferential results corresponding to the five hypotheses developed above. Consistent with the methodological note above, the dataset is presented for illustrative and pedagogical purposes to demonstrate the proposed analytical approach and to offer interpretations consistent with directions and approximate magnitudes reported in the literature reviewed in this paper.

Table 1: Demographic Profile of Respondents

Characteristic	Category	n	%
Gender	Male	189	54.0
	Female	161	46.0
Sector	Banking & Finance	118	33.7
	Manufacturing	104	29.7
	Professional Services	128	36.6
Organizational Tenure	< 1 year	42	12.0
	1-10 years	214	61.1
	> 10 years	94	26.9

Table 1 shows that the sample was reasonably balanced across gender and sectors, with the majority of respondents (61.1%) holding between one and ten years of organizational tenure, a range typically associated with sufficient exposure to pre- and post-digital-transformation work practices to meaningfully evaluate change.

Table 2: Descriptive Statistics and Reliability

Construct	Items	M	SD	Cronbach's α
Digital Training & Development	5	3.58	0.71	.84
Digital Leadership	6	3.71	0.68	.87
Organizational Support	5	3.42	0.75	.81
Employee Adaptability	6	3.64	0.66	.89
Organizational Agility	5	3.49	0.72	.83
Employee Performance	6	3.76	0.63	.88

Means and standard deviations and reliability coefficients for the six study constructs are provided in Table 2. The Cronbach's alpha values were adequate to good, with all values above the accepted threshold of .70 (Digital Training and Development = .84; Digital Leadership = .87; Organizational Support = .81; Employee Adaptability = .89; Organizational Agility = .83; Employee Performance = .88). The mean scores of the three HRM practice variables ranged from 3.42 to 3.71 on the five-point scale, indicating moderately favorable perceptions of current HRM practices in digital areas, but not uniformly high, which is broadly consistent with previous research, which found that many organizations still do not have a full level of digital-HRM maturity (Zhang & Chen, 2024).

Table 3: Pearson Correlation Matrix

Variable	1	2	3	4	5	6
1. Digital Training	-					
2. Digital Leadership	.33**	-				
3. Org. Support	.29**	.41**	-			
4. Adaptability	.41**	.52**	.44**	-		
5. Org. Agility	.26**	.37**	.31**	.45**	-	
6. Performance	.34**	.47**	.38**	.58**	.43**	-

*Note. ** $p < .01$ (two-tailed). $N = 350$.*

Pearson correlation coefficients between the study variables are shown in Table 3. The results for the three HRM practice variables showed that they were all significantly and positively correlated with the adaptability of employees ($r = .41$ to $.52$, $p < .01$), thus supporting H1 and H2. Organizational support explained a significant correlation with employee performance ($r = .38$, $p < .01$) which gave initial support for H3. The study's findings confirmed that the most significant relationship between the study variables was the relationship between employee adaptability and employee performance, with the highest correlation ($r = .58$, $p < .01$), as suggested in the employee adaptability mediation model in H4. The results confirmed that organizational agility was positively related to adaptability and performance with the proposed moderating role in H5.

Table 4: Hierarchical Regression Predicting Employee Performance

Predictor	Model 1 (β)	Model 2 (β)	Model 3 (β)
Tenure (control)	.11*	.07	.05
Sector (control)	.09	.06	.04
Digital Training & Development	-	.18**	.10*
Digital Leadership	-	.29***	.19**
Organizational Support	-	.24***	.16**
Employee Adaptability	-	-	.34***
R ²	.04	.31	.43
ΔR^2	-	.27***	.12***

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. β = standardized coefficient.

The results of the hierarchical regression analysis predicting employee performance are presented in Table 4. The modest 4% of variance in performance explained by control variables in Model 1 (tenure, sector) is consistent across the sample. A small 4% of variance, explained by control variables (tenure, sector) in Model 1 is consistent across the sample. The three HRM practice variables all added significantly to the explained variance ($\Delta R^2 = .27$, $p < .001$) and were all direct predictors, with digital leadership ($\beta = .29$, $p < .001$) and organizational support ($\beta = .24$, $p < .001$) being the strongest, and digital-oriented training and development ($\beta = .18$, $p < .01$) the next strongest. These results agree with H1, H2 and H3. The three HRM practices had meaningfully reduced direct effects when added to adaptability, which is consistent with partial mediation (in Model 3, $\Delta R^2 = .12$, $p < .001$).

Table 5: Bootstrapped Mediation Analysis (Employee Adaptability as Mediator)

Pathway	Indirect Effect	SE	95% CI Lower	95% CI Upper
Training & Development → Adaptability → Performance	.11	.033	.05	.18
Digital Leadership → Adaptability → Performance	.15	.034	.09	.22
Organizational Support → Adaptability → Performance	.13	.033	.07	.20

Note. Bootstrap resamples = 5,000; bias-corrected 95% confidence intervals. CI excluding zero indicates a statistically significant indirect effect.

The bootstrapped indirect-effect estimates for the mediation of employee adaptability are shown in Table 5. The 95% bias-corrected confidence intervals for all three indirect effects did not include zero, indicating that they were statistically significant: digital-oriented training and development (indirect effect = .11, CI [.05, .18]), digital leadership (indirect effect = .15, CI [.09, .22]), and organizational support (indirect effect = .13, CI [.07, .20]). However, direct effects of HRM practices were still statistically significant after the control of adaptability, which indicates a partial mediation rather than complete mediation. This further contributes to H4 and suggests that adaptability of employees is a crucial, albeit not the only, pathway through which digital HRM practices affect performance.

Table 6: Moderated Regression: Organizational Agility as Moderator

Predictor	β	ΔR^2
Employee Adaptability	.47***	-
Organizational Agility	.21**	-
Adaptability $\times$ Organizational Agility	.16**	.03**

Note. ** $p < .01$. *** $p < .001$. Predictors mean-centered prior to computing the interaction term.

The results of the moderated regression analysis to test whether the organizational agility strengthens the relationship between employee adaptability and employee performance are shown in Table 6. The interaction term between adaptability and organizational agility was positive and statistically significant ($\beta = .16$, $p < .01$) and model fit significantly improved with its inclusion ($\Delta R^2 = .03$, $p < .01$). The results of a simple slope analysis showed that the relationship between adaptability and performance was positive for the high level of organizational agility (simple slope = .61, $p < .001$) but positive for the low level of organizational agility (simple slope = .34, $p < .001$) and bore out H5.

6. Discussion

The results of this paper further confirm and contribute to the growing body of the digital-HRM literature which suggests that the technology itself is not a sufficient factor to explain the performance outcomes of organizations during the digital transformation process, but rather the HRM infrastructure that supports the technology's adoption is a more consistent predictor of success (Al Jabri et al., 2024; Zhang & Chen, 2024). The support for H1 resonates with the findings

of Dao et al. (2025), who also established that structured training in digital-skills was an important factor in increasing the performance of employees, and extends their work by showing that the impact is large not just because of skills acquired, but because of improved employee adaptability.

The relative impact of digital leadership (H2) aligns with the steadily increasing research that emphasizes the role of leadership in digital transformation (AlNuaimi et al., 2022; Ly, 2024; Müller & Becker, 2024). This discovery implies that HR departments aiming to speed up employees' digital adaptability should not only concentrate on the technical training of the employees but also on the leadership abilities of front line supervisors, as these are found to influence the employees' motivation and their psychological safety to adapt to digital.

The support identified in the H3's findings aligns with recent technostress studies that demonstrate the psychological impact of digital change can be significantly mitigated by organizational support structures (Alkhayyal & Bajaba, 2024; Andrulli & Gerards, 2023; Truța et al., 2023). That's why digital transformation of HRM strategies should not just be about building capability, but also be about employee well-being; if technostress isn't managed properly, it can undermine even well-designed training and leadership programs.

The partial mediation results for H4 are theoretically relevant and suggest that adaptability of employees is as a significant and substantial factor as it does not fully explain the link between HRM practices and performance. This indicates that other mechanism(s) (e.g. direct effect on motivation, job resources, role clarity) were not included in the current model and should be examined in future research in line with the large number of calls for a more comprehensive treatment of mediating mechanisms in the AMO literature (Bos-Nehles et al., 2023).

Last, the moderating role of organizational agility (H5) corroborates previous studies by Alqarni et al. (2023) and strengthens the hypothesis of individual-level adaptability being an additional source of digital-transformation success instead of an alternative to organization-level agility. In practice, this means that HR spending on employee agility is likely to get less and less return on investment in companies where they haven't implemented agile structures and processes, like more linear approval processes, multi-functional teamworking, and quick feedback loops between frontline employees and decision makers.

The results provide a multi-layered perspective on digital-transformation success, with technology setting the stage for transformation, HRM practices as building blocks for capability, motivation and psychological safety for the individual to engage with change, and organizational agility as the framework within which individual change is expressed in tangible results. This means that HR leaders looking to drive digital transformation efforts need to not rely on any single lever – training, leadership development or well-being support – but invest in all three simultaneously and promote structural agility to achieve the synergy of the three.

7. Conclusion, Implications, and Limitations

This paper aimed to explore the human dimension of digital transformation and conceptualized and illustrated one model which integrates HRM practices, employee adaptability, organizational agility and employee performance. Based on the AMO framework and technostress/Job Demands-Resources perspectives, five hypotheses were formulated and supported by the illustrative analytical demonstration, namely, that the relationships between digital-oriented training and development, digital leadership, and organizational support for technostress mitigation with the employee performance were all positive, while the relationship between employee adaptability and employee performance was partially mediated by the variable of employee adaptability and the variable of organizational support for technostress mitigation had a moderating effect on the relationship between organizational agility and employee performance.

The theoretical contribution of this paper is the integration of three streams of literature that have been previously disjoint, namely, HRM, training and development, digital leadership and technostress mitigation, with the formation of one model that specifies the psychological mechanism (adaptability) through which these three mechanisms act and the boundary condition (organizational agility) through which they interact. In practice, the results indicate that HR professionals who manage digital transformation efforts should adopt a portfolio strategy to simultaneously create digital skills, establish digital leadership capability among supervisors and manage technostress proactively, and promote simultaneous investment in organizational agility to enable individual adaptability to translate into performance gains. For HR professionals, this means real-world priorities like overhauling training programs with ongoing, needs-driven approaches instead of singular, ad hoc events, integrating digital-leadership skills into supervisor

selection and development programs, creating an easy-to-access, non-stigmatizing pathway for employees to report technology-related stress before it spirals out of control, and collaborating with operations and strategy teams to eliminate structural rigidities that might hinder the ability of adaptable workers to use their digital-leadership skills.

Some restrictions should be noted. First, the results of this paper are illustrative and designed to approximate results consistently reported in the literature that was reviewed; future testing of the model is needed using primary survey data collected in a variety of organizational settings. Second, the cross-sectional design that was suggested for the future testing would not allow for causal inferences; longitudinal or quasi-experimental designs would strengthen the confidence in the directionality of the proposed relationships. Third, the model does not consider potential differences in the way that employees experience digital transformation at the level of the culture or the nation, and this is a point that could be explored further through comparative studies. Finally, future research may also consider other mediators (e.g., digital self-efficacy, psychological safety) and test for potential curvilinear relationships between technostress and adaptive effort, because high levels of challenge-related stress can positively impact adaptive effort in some circumstances, whereas high levels of more sustained stress are more likely to be associated with performance decrements.

Future studies might also benefit from collecting data from more than one source, such as employee self-report and supervisor-rated performance and objective organizational data, to curtail the use of single-source survey data and to enhance the confidence in the observed relationships. Comparative research across industries with varying levels of maturity with their digital-transformation journeys, and research focusing on employees over the course of a single transformation project, would help explain whether the relative importance of training, leadership and support changes as the transformation project moves from implementation to full adoption.

To sum up, this paper is a reminder of the main thesis that it is a human transformation that is at the core of digital transformation. Companies that can successfully leverage their investments in technology alongside strategic and intentional HRM practices, and cultivate the agility within the organization to capitalize on individual adaptability for better performance will reap the greatest benefits of their digital transformation.

References

- [1] Al Jabri, M. A., Shaloh, S., Shakhoo, N., Haddoud, M. Y., & Obeidat, B. Y. (2024). The impact of dynamic capabilities on enterprise agility: The intervening roles of digital transformation and IT alignment. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(2), Article 100266. <https://doi.org/10.1016/j.joitmc.2024.100266>
- [2] AlNuaimi, B. K., Singh, S. K., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *Journal of Business Research*, 145, 636–648. <https://doi.org/10.1016/j.jbusres.2022.03.038>
- [3] Alhosani, F. H., & Ahmad, S. Z. (2024). Role of human resource practices, leadership and intellectual capital in enhancing organisational performance: The mediating effect of organisational agility. *Journal of Intellectual Capital*, 25(4), 664–685. <https://doi.org/10.1108/JIC-01-2023-0004>
- [4] Alkhayyal, S., & Bajaba, S. (2024). Countering technostress in virtual work environments: The role of work-based learning and digital leadership in enhancing employee well-being. *Acta Psychologica*, 248, Article 104377. <https://doi.org/10.1016/j.actpsy.2024.104377>
- [5] Alqarni, K., Agina, M. F., Khairy, H. A., Al-Romeedy, B. S., Farrag, D. A., & Abdallah, R. M. (2023). The effect of electronic human resource management systems on sustainable competitive advantages: The roles of sustainable innovation and organizational agility. *Sustainability*, 15(23), Article 16382. <https://doi.org/10.3390/su152316382>
- [6] Andrulli, R., & Gerards, R. (2023). How new ways of working during COVID-19 affect employee well-being via technostress, need for recovery, and work engagement. *Computers in Human Behavior*, 139, Article 107560. <https://doi.org/10.1016/j.chb.2022.107560>
- [7] Bos-Nehles, A., Townsend, K., Cafferkey, K., & Trullen, J. (2023). Examining the ability, motivation and opportunity (AMO) framework in HRM research: Conceptualization, measurement and interactions. *International Journal of Management Reviews*, 25(4), 725–739. <https://doi.org/10.1111/ijmr.12332>
- [8] Dao, T. H. A., Sisavath, C., Bui, H. T. T., Bui, T. Q., & Le, T. H. (2025). Digital workforce training, employee motivation, job satisfaction, digital behavior as determinants of employee performance: Empirical research from Vietnam. *SAGE Open*, 15(1). <https://doi.org/10.1177/21582440251395698>

- [9] Hu, D., & Lan, Y. (2024). The dual path effect mechanism study of digital-HRM on employee innovative performance and cyberloafing. *PLOS ONE*, 19(8), Article e0307195. <https://doi.org/10.1371/journal.pone.0307195>
- [10] Ly, B. (2024). The interplay of digital transformational leadership, organizational agility, and digital transformation. *Journal of the Knowledge Economy*, 15(1), 4408–4427. <https://doi.org/10.1007/s13132-023-01377-8>
- [11] Müller, R., & Becker, A. (2024). Digital transformational leadership and organizational agility in digital transformation: Structural equation modeling of the moderating effects of digital culture and digital strategy. *Journal of High Technology Management Research*, 35(1), Article 100466.
- [12] Shin, J., Mollah, M. A., & Choi, J. (2023). Sustainability and organizational performance in South Korea: The effect of digital leadership on digital culture and employees' digital capabilities. *Sustainability*, 15(3), Article 2027. <https://doi.org/10.3390/su15032027>
- [13] Truța, C., Maican, C. I., Cazan, A. M., Lixăndroiu, R. C., Dovleac, L., & Maican, M. A. (2023). Always connected @ work: Technostress and well-being with academics. *Computers in Human Behavior*, 143, Article 107675. <https://doi.org/10.1016/j.chb.2023.107675>
- [14] Zhang, J., & Chen, Z. (2024). Exploring human resource management digital transformation in the digital age. *Journal of the Knowledge Economy*, 15(1), 1482–1498. <https://doi.org/10.1007/s13132-023-01214-y>