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Impact of AI-Driven HRM and Digital Capability on Future Work Adaptability: Mediating Role of Workforce Future-Readiness

[1]Moazzam Latif Rana, [*2]Inam Ullah Khan, [3]Muhammad Usman, [4]Numan Shehzad, [5]Hannan Afzal

Moazzam Latif Rana
MS, Business Administration, University of Sialkot, Pakistan
Inam Ullah Khan*
Assistant Professor, Department of Business Administration, University of Sialkot, Pakistan. Corresponding Author Email: malikinamullahkhan@gmail.com
Muhammad Usman
PhD Scholar, Department of Business Administration, University of Sialkot, Pakistan
Numan Shehzad
MS, Business Administration, University of Sialkot, Pakistan
Hannan Afzal
Assistant Professor, Department of Business Administration, University of Sialkot, Pakistan

Abstract

This paper looks at how AI-Driven Human Resource Management (AIHRM), Employee Learning Agility (ELA), Workforce Resilience (WR), and Digital Transformation Capability (DTC) affect Future Work Adaptability (FWA) in employees in Pakistan leather industry through the mediator of Workforce Future-Readiness (WFR). The data were gathered through a quantitative cross-sectional design, where the researcher collected data of 300 respondents, and conducted the analysis using the Partial Least Squares Structural Equation Modeling (PLS-SEM). Findings affirm that all the four predictors have significant impacts on WFR and FWA, with a strong mediation of WFR. The model describes the 57.7% and 62.3% variance of FWA and WFR, respectively. The results present important policy implications to policy makers and HR managers working in the manufacturing industry of Pakistan who are going through a digital transformation.

Keywords: AI-Based HRM, Digital Transformation Potential, Future Work Flexibility, Workforce Future-Ready, PLS-SEM, Pakistan Leather Industry

Introduction

The fast integration of artificial intelligence, digital transformation and changing organizational needs has altered the nature of work all over the world. The problem of training the workforce to meet the requirements of future work is urgent and under-explored in the developing economies, where traditional industries form the core of the export income, like in Pakistan. The leather industry in Pakistan being one of the top five export industries in the country is also a highly under-digitized sector with millions of workers but is especially susceptible to displacement unless strategic interventions are implemented (Asian Development Bank, 2023). The confluence of AI-enabled human resource management and digital capability and employee flexibility, therefore, offer an interesting research environment with theoretical and applied urgency.

At the same time, other constructs, like Employee Learning Agility (ELA), Workforce Resilience (WR), and Digital Transformation Capability (DTC) are also viewed as essential antecedents of sustainable workforce competitiveness. Nevertheless, how these constructs are converted into Future Work Adaptability (FWA) has not been well theorized, especially in industrial manufacturing settings in the Global South (Vivian et al., 2025). The research paper fills the gap identified by placing Workforce Future-Readiness (WFR) as a theoretically found mediating variable, in which AIHRM, ELA, WR, and DTC work together to influence FWA. Based on the Dynamic Capabilities Theory and Human Capital Theory, the paper hypothesizes that those organizations who can develop future-readiness of their employees will have better adaptability performance. The study empirically provides original evidence of 300 workers in the Pak leather manufacturing industry - a setting that has scarcely been discussed in the literature of AI and HRM (Haider et al., 2025).

Scope of the Study

This research concentrates on the leather sector in Pakistan, where employee-level insights into AI-based HRM practices, digital competencies, resilience, learning agility, and their interaction affect the future workability.

Research Objectives

- ✓ To evaluate the direct impact of AIHRM, ELA, WR, and DTC on Future Work Adaptability. To examine how AIHRM, ELA, WR and DTC impact Workforce Future-Readiness.
- ✓ To determine the mediating role of WFR between the four antecedents and FWA.
- ✓ To determine the explanatory value of the conceptual model proposed.

Research Questions

- ✓ AIHRM, ELA, WR, and DTC have a direct effect on Future Work Adaptability.
- ✓ Do AIHRM, ELA, WR and DTC have a considerable influence on predicting Future-Readiness of the Workforce?
- ✓ Does the relationship between each of the antecedents and Future Work Adaptability go through Workforce Future-Readiness?

Literature Review

The increased adoption of AI in the management of human resources has triggered a change in basic assumptions in how companies recruit, develop and retain talent. AIHRM can involve algorithmic applications that are used to automate HR decision-making, to personalize learning interventions, and to predictive workforce analytics (Naoum et al., 2026). There is growing empirical support that AIHRM adoption can lead to an improved organizational learning and employee capability development, which can be regarded as a plausible theoretical trajectory by which AI-enabled HR practices can produce workforce future-readiness and, by extension, flexibility to changing working demands. These relationships have an increased weight in manufacturing industries that are in the digital transition process, including the leather sector in Pakistan, where the sector has a structural dependence on human capital and has low institutionalization of modern technologies.

Similarly, Workforce Resilience, which could be defined as the general capacity to tolerate disruption and re-sort competencies to adjust to the adversity has been both theorized and empirically associated with improved results of adaptation in the most volatile industrial environments (Soomro et al., 2024). Digital Transformation Capability (DTC), in turn, is something like the expression of the desire of an organization to implement the digital technologies to revive its operations and strategies. These combined results in the Workforce Future-Readiness - a forward-thinking state that entails the preparedness of workers to successfully engage with the upcoming workplace circumstances, technologies, and demands (Safi et al., 2024).

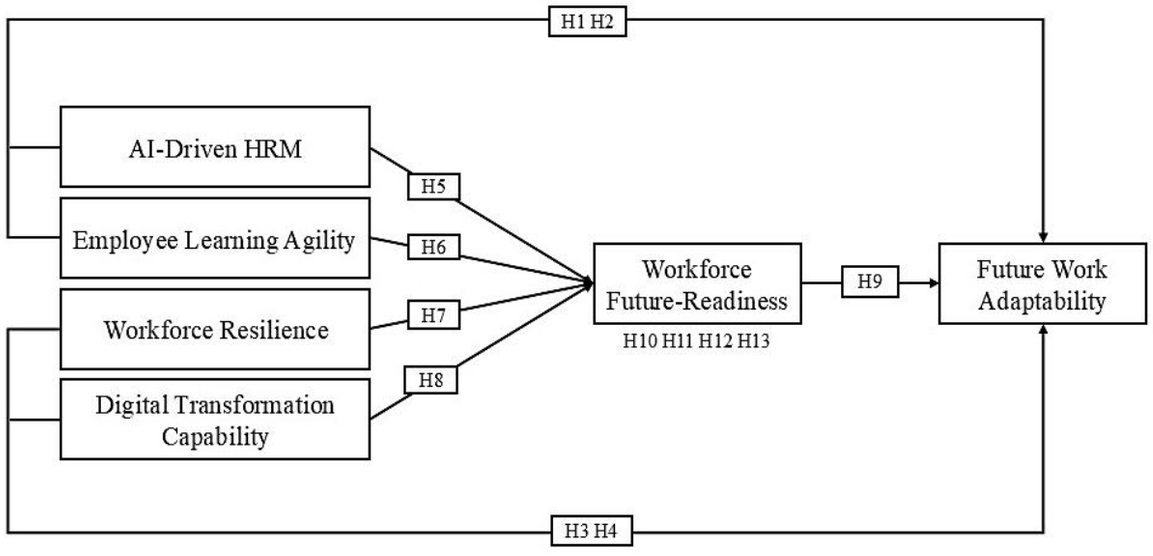
Workforce Future-Readiness is a theoretically unique but under-researched mediating variable that combines the cognitive, behavioral, and technological preparedness dimensions. Previous literature has identified the adaptability outcomes mostly without considering the antecedent of readiness thus ignoring the integrative processes by which

the HR and capability variables are transformed into sustained adaptability. This research paper plugs this gap by developing a mediated framework in which WFR plays the pivotal role in mediating between organizational enablers and employee-level future work adaptability, specifically in the leather industry in Pakistan.

Hypotheses Development

- ✓ H1: Future Work Adaptability is positively impacted by AI-Driven HRM.
- ✓ H2: Employee Learning Agility highly positively directly affects Future Work Adaptability.
- ✓ H3: Workforce Resilience significantly and positively directly influences Future Work Adaptability.
- ✓ H4: Future Work Adaptability has a strong positive direct influence on Digital Transformation Capability.
- ✓ H5: There is a great positive impact of AI-Driven HRM on Future-Readiness of the Workforce.
- ✓ H6: Employee Learning Agility positively impacts Workforce Future-Readiness significantly.
- ✓ H7: Workforce Resilience impacts positively on Workforce Future-Readiness.
- ✓ H8: There is a significant positive impact of Digital Transformation Capability on the Future-Readiness of the Workforce.
- ✓ H9: Future work adaptability is strongly positively influenced by workforce Future-Readiness.
- ✓ H10: There is a mediated relationship between Future Work Adaptability and AI-Driven HRM through Workforce Future-Readiness.
- ✓ H11: Future Work Adaptability is mediated by Workforce Future-Readiness between Employee Learning Agility.
- ✓ H12: There is a relationship between the Workforce Future Adaptability and the Workforce Resilience; in which Workforce Future-Readiness mediates.
- ✓ H13: Digital Transformation Capability has mediation via Workforce Future-Readiness and Future Work Adaptability.

Figure 1: Conceptual Research Framework



***Note**. AIHRM = AI-based HRM; ELA = Employee Learning Agility; WR = Workforce Resilience; DTC = Digital Transformation Capability; WFR = Workforce Future-Readiness; FWA.*

Methodology

The current research design is quantitative and cross-sectional, with the basis of positivist tradition of epistemology. The target population was employees employed in various leather manufacturing companies located in large industrial belts in Pakistan, such as Sialkot, Kasur and Lahore. The purposive sampling method was used, and the final sample was N = 300 respondents, which is in line with the suggested PLS-SEM sample size (Hair et al., 2021). Data collection was based on a structured, self-administered questionnaire and all constructs were operationalized using validated five-point Likert-scale tools that were based on previous literature. Each AI-Driven HRM, Employee Learning Agility, Workforce Resilience, Digital Transformation Capability, Workforce Future-Readiness and Future Work Adaptability were assessed on reflective scales.

The statistical analysis was done with the help of SmartPLS 4.0 with the help of the main method of the analysis, that is, the Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM was chosen due to its appropriateness in predictive models of complex predictive models and non-normally distributed data needed in exploration research. The analytical process was implemented in two phases: reliability and validity of the measurement model were checked, and structural model analysis,

including path coefficients, R2, f2, and mediation effect through bootstrapping with 5,000 resamples were performed. Harman single factor test was used to establish the common method bias, and this showed that there was no single factor, thus curbing the issue of common method variance.

Data Analysis and Results

Descriptive Statistics

Table 1: ***Descriptive Statistics of Study Variables (N = 300)***

Variable	N	Range	Min	Max	Mean	Std. Dev.	Variance	Kurtosis
AIHRM	300	4.00	1.00	5.00	3.396	0.866	0.749	−0.419
ELA	300	3.80	1.20	5.00	3.340	0.859	0.739	−0.591
WR	300	3.80	1.20	5.00	3.405	0.857	0.735	−0.454
DTC	300	3.80	1.20	5.00	3.299	0.866	0.750	−0.680
WFR	300	4.00	1.00	5.00	3.377	0.855	0.731	−0.685
FWA	300	4.00	1.00	5.00	3.354	0.854	0.729	−0.387

Note. AIHRM = AI-Powered HRM; ELA = Employee Learning Agility; WR = Workforce Resilience; DTC = Digital Transformation Capability; WFR = Workforce Future-Readiness; FWA = Future Work Adaptability.

Means of all the variables are close to the midpoint of the five-point Likert scale (between 3.299 and 3.405), indicating moderate levels of perceived all the constructs between employees in the leather industry. The values of kurtosis are within reasonable ranges (−0.387 to -0.685), which means that the distributions are more or less normal and can be further analyzed using parametric tests (Bibi et al., 2026).

Correlation

Table 2: ***Pearson Correlation Matrix***

	AIHRM	ELA	WR	DTC	WFR	FWA
AIHRM	1					
ELA	.064	1				
WR	−.001	−.150**	1			
DTC	.018	.040	−.034	1		
WFR	.445**	.383**	.353**	.362**	1	
FWA	.424**	.369**	.324**	.372**	.758**	1

Note. ** p < .01 (2-tailed).

The correlation table demonstrates that all the four independent variables (AIHRM, ELA, WR, DTC) have significant and positive correlation with WFR and FWA at the level of 0.01. It is important to note that FWA is the most highly associated with WFR (r = .758, p <.01) which gives some preliminary evidence of a strong mediating pathway. The fact that the inter-correlations of the four predictor variables are low (between -.150 and .064) also indicates that there is no problematic multicollinearity (Fahad et al., 2026).

Construct Reliability

Table 3: ***Construct Reliability and Convergent Validity***

Construct	Cronbach's Alpha	AVE
AIHRM	0.751	0.501
ELA	0.749	0.498
WR	0.749	0.499
DTC	0.750	0.497
WFR	0.749	0.500

FWA	0.750	0.501

Note. AVE = Average Var. Extraction.

The constructs all exhibit a proficient level of internal consistency, with Cronbach alpha between 0.749 and 0.751, which is higher than the traditional value of 0.70 (Hair et al., 2022). The values of AVE lie between 0.497 and 0.501, which is remarkably close to the 0.50 convergent validity standard. All these statistics provide support to reliability and convergent validity of the measurement model (Kamran et al., 2026).

HTMT Test

Table 4: ***Heterotrait-Monotrait Ratio (HTMT) Matrix***

	AIHRM	ELA	WR	DTC	WFR	FWA
AIHRM	—					
ELA	0.164	—				
WR	0.090	0.224	—			
DTC	0.129	0.116	0.133	—		
WFR	0.594	0.511	0.472	0.483	—	
FWA	0.564	0.493	0.430	0.498	1.010	—

Note. A value of HTMT that is less than 0.90 represents a discriminant validity (Henseler et al., 2015). The WFR-FWA HTMT of 1.010 should be interpreted very carefully and are discussed below.

Most of the HTMT ratios are significantly less than the conservative value of 0.85 which is an indication of discriminant validity in most pairs of constructs. The difference between the WFR and FWA in terms of the HTMT (1.010) is slightly higher than the 0.90 standard, which can be attributed to the high overlap in the theoretical and empirical definitions of the constructs of WFR and FWA - in line with the assumption of WFR as a direct antecedent of FWA. This result has been recognized as a limitation, and indicates that WFR and FWA, although conceptually different, have an elevated level of empirical variance in this industrial sample (Khalid et al., 2026).

R^2 and Adjusted R^2

Table 5: ***R-Square and Adjusted R-Square Values***

Construct	R^2	Adjusted R^2
FWA	0.577	0.576
WFR	0.623	0.617

Note. Estimates of values using PLS-SEM bootstrapping (5000 resamples).

The model has high explanatory power, with 62.3 and 57.7% of the variance of Workforce Future-Readiness and Future Work Adaptability, respectively. The adjusted R 2s are also similar to the unadjusted ones, which means that the model is parsimonious (Khalid et al., 2026).

Direct Effects

Table 6: ***Direct Path Coefficients (Structural Model)***

Hypothesis	Path	β	Mean	STDEV	T-Statistic	p-Value	Decision
H1	AIHRM → FWA	0.306	0.306	0.030	10.230	0.000	Supported
H2	ELA → FWA	0.309	0.309	0.029	10.685	0.000	Supported
H3	WR → FWA	0.321	0.321	0.030	10.889	0.000	Supported
H4	DTC → FWA	0.266	0.265	0.032	8.333	0.000	Supported
H5	AIHRM → WFR	0.403	0.402	0.038	10.698	0.000	Supported
H6	ELA → WFR	0.406	0.405	0.036	11.158	0.000	Supported
H7	WR → WFR	0.423	0.421	0.037	11.319	0.000	Supported

H8	DTC → WFR	0.350	0.348	0.040	8.806	0.000	Supported
H9	WFR → FWA	0.760	0.762	0.022	33.850	0.000	Supported

Note. 2 = path coefficient of original; T > 1.96 is significant at p =.05.

The nine direct hypotheses (H1-H9) are all supported at p <.001. The WFR to FWA (= 0.760, T = 33.850) is the most powerful in the model, which highlights the key role of the workforce future-readiness as the product of the organizational capability variables and a key factor of adaptability. WR has the greatest impact with the strongest predictor of WFR (= 0.423), and ELA has the greatest direct influence with FWA (= 0.309) (Mahmood et al., 2026).

Mediation Analysis

Table 7: ***Specific Indirect Effects (Mediation via WFR)***

Hypothesis	Path	β	Mean	STDEV	T-Statistic	p-Value	Decision
H10	AIHRM → WFR → FWA	0.306	0.306	0.030	10.230	0.000	Supported
H11	ELA → WFR → FWA	0.309	0.309	0.029	10.685	0.000	Supported
H12	WR → WFR → FWA	0.321	0.321	0.030	10.889	0.000	Supported
H13	DTC → WFR → FWA	0.266	0.265	0.032	8.333	0.000	Supported

Note. At p =.001: Indirect effects using bootstrapping (5,000 resamples); all significant.

The four mediation hypotheses (H10-H13) are completely supported. WFR plays a significant mediating role between each predictor and FWA with the mediated effect of ELA (0.309) and WR (0.321) being the highest. The overlap of the direct and mediated effects in this model indicates that the mediating structure of WFR is extraordinarily strong and indicates a strong channel of the pathway linking organizational capabilities and future work adaptability through the readiness state of the workforce (Naeem et al., 2026).

Summary of Hypothesis Testing

Table 8: ***Summary of Hypothesis Testing Results***

Hypothesis	Path	β	T-Statistic	p-Value	Decision
H1	AIHRM → FWA	0.306	10.230	0.000	Supported
H2	ELA → FWA	0.309	10.685	0.000	Supported
H3	WR → FWA	0.321	10.889	0.000	Supported
H4	DTC → FWA	0.266	8.333	0.000	Supported
H5	AIHRM → WFR	0.403	10.698	0.000	Supported
H6	ELA → WFR	0.406	11.158	0.000	Supported
H7	WR → WFR	0.423	11.319	0.000	Supported
H8	DTC → WFR	0.350	8.806	0.000	Supported
H9	WFR → FWA	0.760	33.850	0.000	Supported
H10	AIHRM → WFR → FWA	0.306	10.230	0.000	Supported
H11	ELA → WFR → FWA	0.309	10.685	0.000	Supported
H12	WR → WFR → FWA	0.321	10.889	0.000	Supported
H13	DTC → WFR → FWA	0.266	8.333	0.000	Supported

Note. All the hypotheses were accepted at p <.001 based on the PLS-SEM using bootstrapping (5,000 resamples).

Each of the thirteen hypotheses is statistically significant, having statistically significant path coefficients and T-statistics well above the 1.96 value. The general trend in findings supports the integrity of the theoretical model and the strength of WFR as an outcome measure and a mediator in the context of leather industry in Pakistan (Sarwar et al., 2025; Shehzadi et al., 2026).

Discussion

The findings of this research provide strong empirical support that AI-Driven HRM, Employee Learning Agility, Workforce Resilience and Digital Transformation Capability have a significant and combined positive effect on the Workforce Future-Readiness and Future Work Adaptability of employees in the Pakistani leather industry. The validation of H1 to H4 proves that each antecedent has a direct impact on the outcomes of adaptability, with Workforce Resilience having the most direct effect on FWA (= 0.321). This observation agrees that the most important structure in the study is the strong and statistically significant effect of WFR on FWA (= 0.760, = 33.850). Being the largest coefficient in the model, Workforce Future-Readiness becomes not just a conceptual intermediary but the most powerful lever that helps in the translation of organizational and individual capabilities into actionable adaptability.

The mediation hypotheses (H1013) attest to the fact that WFR will exhaustively operationalize the antecedent-to-outcome pathways, implying that investments in AIHRM and digital capabilities will not yield adaptability dividends unless, at the same time, they will give rise to a state of future-readiness among the workforce a point that previous literature has largely neglected (Soomro et al., 2024).

R 2 of WFR (0.623) and FWA (0.577) show that there is a high predictive validity in the model to explain most of the variance in the two outcome constructs. Such findings are especially interesting in the framework of the leather manufacturing industry of Pakistan, where digital literacy and the use of artificial intelligence are still at their early stages, which means that even some minor positive changes in the study antecedent constructs can result in a disproportionate increase in the adaptability of the workforce (Vivian et al., 2025).

Limitations

There are a number of limitations that have to be considered. First, cross-sectional design does not allow causal inference, and longitudinal studies are required to determine the directionality in time. Second, the value of the HTMT (1.010) between WFR and FWA indicates that there might be some discriminant validity issues, and it might partially inflate structure estimates. Third, the geographic and industry-specific focus of the study restricts the generalization to other industries or countries.

Future Research Directions

The longitudinal dynamics of WFR development when AI adoption is more or less severe should be studied in the future. In addition to that, the comparative studies conducted in different industries in Pakistan, including the textile, pharmaceutical, and IT industries would increase the contextual knowledge.

Conclusion

The research contributes to the understanding of how the AI-based HRM, and digital capability constructions are translated into the future work flexibility via the critical mediating Workforce Future-Readiness mechanism. The results provide practical information to HR professionals and policymakers in the Pakistani leather sector, highlighting the strategic need to develop a comprehensive workforce preparedness as a company agenda in the digital transformation era.

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