



# ANALYSING THE IMPACT OF AI IMPLEMENTATION ON HUMAN RESOURCES AND FINANCIAL MANAGEMENT: THE MEDIATING ROLE OF EMPLOYEE SKILL ENHANCEMENT

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## Abstract

In today's business environment, the incorporation of Artificial Intelligence (AI) is transforming the landscape of Human Resources Management (HRM) and Financial Management (FM). This study investigates the intricate dynamics of AI implementation in these domains, with a specific focus on the mediating role of employee skill enhancement. Employing a comprehensive research methodology, including a structured questionnaire distributed to 404 employees in private companies across various sectors in India, and utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) for analysis, the research reveals significant positive associations between AI implementation and enhanced HRM efficiency, optimized FM processes, and improved employee skill sets. The proposed conceptual model visually represents these complex relationships, contributing both theoretical insights and practical implications for organizations navigating the transformative landscape of AI implementation.

**Keywords:** Artificial Intelligence (AI); Human Resources Management (HRM); Financial Management (FM); Employee Skill Enhancement.

## 1. INTRODUCTION

In the current business environment, the incorporation of Artificial Intelligence (AI) has become a revolutionary catalyst, altering conventional frameworks across diverse organizational functions (Theotokas et al., 2024; Wang et al., 2023). Among the domains profoundly affected by this technological revolution are Human Resources Management (HRM) and Financial Management (FM) (Rožman et al., 2023; Yang, 2022). The strategic implementation of AI in these areas promises increased efficiency, optimization, and potentially revolutionary advancements (Rožman et al., 2022). This paper explores the intricate dynamics of this shift, seeking to examine the nuanced influence of AI implementation on both Human Resources and Financial Management within the organizational structure.

The advent of AI technologies has ushered in a new era, redefining how businesses approach their core functions (Tuomi, 2018). Human Resources, as the custodian of talent management and workforce dynamics, faces the challenge and opportunity of harnessing AI to enhance efficiency in recruitment, employee engagement, and skill development (Budhwar et al., 2023). Simultaneously, Financial Management is undergoing a paradigm shift, with AI



offering unparalleled capabilities in data analysis, forecasting, and decision-making (Budhwar et al., 2022). Understanding the multifaceted impact of AI in these critical areas requires a comprehensive examination that goes beyond surface-level observations (Onesti, 2023; Resende et al., 2023).

One pivotal aspect that adds depth to our investigation is the mediating role of employee skill enhancement (Alnamrouti et al., 2022). As AI permeates organizational structures, the skill set of the workforce becomes central to maximizing the benefits and mitigating potential challenges (Cramarenco et al., 2023). Consequently, this study seeks to unravel the intricate relationship between AI implementation, the enhancement of employee skills, and the resultant effects on Human Resources and Financial Management. By exploring these interconnections, we aim to provide valuable insights into the mechanisms through which AI drives organizational advancements.

The significance of this research extends beyond theoretical exploration; it holds practical implications for businesses navigating the complex terrain of AI integration. As organizations grapple with the imperative to stay competitive, understanding the precise ways in which AI shapes HR and Financial Management practices becomes paramount (Kamel & Leithy, 2023; Lee et al., 2023). The findings of this study aim to inform strategic decision-making, offering a roadmap for businesses seeking to leverage AI for holistic organizational enhancement.

In the subsequent sections, this paper details the objectives, hypotheses, and research methodology employed in this investigation, providing a structured framework for comprehensively exploring the impact of AI implementation on Human Resources and Financial Management, with a specific focus on the mediating influence of employee skill enhancement.

## **2. LITERATURE REVIEW**

Critical review of past researches is explained as follows;

### **The Evolving Landscape of AI Implementation in Organizations**

The adoption of AI in organizational settings has witnessed a rapid and transformative evolution in recent years (Asheq et al., 2022; Gagné et al., 2022; Kumari & Yelkar, 2022). Scholars highlight that AI technologies have become integral tools for enhancing decision-making processes, automating routine tasks, and optimizing operational efficiency (Wang et al., 2023). In the realm of HRM, the infusion of AI has been identified as a catalyst for revolutionizing talent acquisition, performance management, and employee engagement (Bujold et al., 2023; Cramarenco et al., 2023). Financial Management, similarly, has experienced a paradigm shift, with AI applications contributing to more accurate financial forecasting, risk management, and strategic financial planning (Alnamrouti et al., 2022; Goswami et al., 2023). Understanding the multifaceted impact of AI in both HRM and Financial Management is imperative for organizations aiming to harness these technologies effectively (Forner et al., 2020; Mitchell et al., 2020; Sheikh et al., 2022).

### **Employee Skill Enhancement in Era of AI**

As organizations embrace AI technologies, the role of the workforce undergoes a fundamental transformation (Abogsesa & Kaushik, 2017; Denisi & Murphy, 2017; Mbore & Cheruiyot, 2017). Employee skill enhancement emerges as a critical mediator in this evolution, bridging the gap between technological implementation and organizational outcomes (Albrecht et al., 2015; Bailey et al., 2017). Research suggests that AI



implementation necessitates upskilling and reskilling initiatives to align the workforce with the demands of advanced technologies (Orosoo et al., 2023; Rožman et al., 2022). Furthermore, the literature underscores the positive correlation between continuous skill development and employee satisfaction, performance, and adaptability in the context of AI integration (Czarnowski & Pszczółkowski, 2020). Thus, an in-depth exploration of how AI shapes and is shaped by employee skill enhancement becomes imperative for a holistic understanding of its impact on organizational dynamics.

### **The Interplay Between AI, HRM, and Financial Management**

In the intersection of AI, HRM, and Financial Management lie intricate dynamics that warrant meticulous investigation (Rikku & Chakrabarty, 2013; Vinesh, 2014). Prior research suggests that AI, when strategically integrated into HRM, enhances the efficiency of recruitment processes, improves employee engagement through personalized experiences, and facilitates data-driven decision-making in talent management (Votto et al., 2021). Similarly, in Financial Management, AI-driven analytics and predictive modeling have demonstrated substantial benefits, enabling organizations to enhance overall financial performance (Panda et al., 2023). Understanding the synergies and potential conflicts arising from AI's simultaneous impact on HRM and Financial Management is crucial for organizations aiming to achieve integrated and harmonious transformations (Shuck & Wollard, 2010).

### **Mediating Role of Employee Skill Enhancement**

While existing literature provides valuable insights into the separate realms of AI impact on HRM and Financial Management, the mediating role of employee skill enhancement remains a relatively underexplored facet (Chang et al., 2023; Kanchana & Jayathilaka, 2023). Scholars argue that the success of AI implementation hinges on the ability of organizations to cultivate a workforce equipped with the necessary skills to interact seamlessly with AI technologies (Malik et al., 2022; Singh & Shaurya, 2021). This underscores the need for an in-depth analysis of how the enhancement of employee skills acts as a mediator, influencing the extent and nature of AI's impact on HRM and Financial Management (Shahzad et al., 2023). Investigating this mediating role adds a layer of complexity to our understanding, enriching the discourse on the intricate interplay between AI and organizational dynamics (Mossarah, 2023; Rajashekar & Jain, 2023; Xu et al., 2023).

In synthesizing the literature, it is evident that the impact of AI implementation on HRM and Financial Management is a multifaceted phenomenon, influenced by various contextual factors, organizational strategies, and the evolving nature of the workforce. This review sets the stage for our research by delineating the key dimensions of AI's impact on HRM and Financial Management, emphasizing the pivotal role of employee skill enhancement as a mediator, and highlighting the interconnectedness of these domains within the broader organizational framework.

### **Hypotheses Development**

Based on the variables of the study, following 5 hypotheses are developed for the study;

H01: There is no significant effect of AI implementation on the efficiency of Human Resources Management.

Ha1: AI implementation significantly enhances the efficiency of Human Resources Management.

H02: There is no significant impact of AI implementation on optimizing Financial

Management.

Ha2: AI implementation significantly optimizes Financial Management.

H03: AI implementation does not significantly contribute to skill enhancement among employees.

Ha3: AI implementation significantly contributes to skill enhancement among employees.

H04: Employee skill enhancement does not mediate the relationship between AI implementation and improvements in Human Resources Management.

Ha4: Employee skill enhancement mediates the relationship between AI implementation and improvements in Human Resources Management.

H05: Employee skill enhancement does not mediate the relationship between AI implementation and advancements in Financial Management.

Ha5: Employee skill enhancement mediates the relationship between AI implementation and advancements in Financial Management.

### **3. RESEARCH METHODOLOGY**

#### **3.1 Questionnaire Development:**

To effectively capture the nuanced dimensions of AI implementation, its impact on Human Resources Management (HRM), Financial Management, and the mediating role of Employee Skill Enhancement, a comprehensive questionnaire was developed. The questionnaire comprises structured items aligned with the research objectives. The statements are designed on a Likert scale ranging from strongly disagree to strongly agree, enabling respondents to express their perceptions and experiences accurately.

The questionnaire is divided into sections, each corresponding to the variables under investigation: Implementation of AI, Human Resources Management, Financial Management, and Employee Skill Enhancement. Careful consideration was given to the clarity, relevance, and comprehensiveness of the items to ensure the reliability and validity of the data collected.

#### **3.2 Research Design**

The study adopted a descriptive research design to fulfill its objectives. Descriptive research enables a thorough investigation of variables in their real-world context, offering insights into the effects of AI implementation on HRM, Financial Management, and the mediating variable of Employee Skill Enhancement. Aligned with the exploratory nature of the study, this design seeks to reveal patterns, trends, and relationships within the organizational context.

#### **3.3 Population and Sampling**

The population under study comprises employees of private companies in the study area of India. Stratified sampling is employed to ensure representation across demographic variables such as job roles, experience levels, and sectors. The target sample size is 404, distributed proportionately across strata, enabling the study to capture diverse perspectives within the organizational workforce.

#### **3.3 Data Collection**

The collection of data is executed through an online survey platform utilizing Google Forms. The online platform facilitates convenient and timely responses from participants. The

surveylink is distributed to selected participants, accompanied by clear instructions and assurances of anonymity and confidentiality. The data collection process is designed to minimize biases and ensure the reliability of responses.

### 3.4 Data Analysis

The data analysis utilizes PLS-SEM, a chosen method due to its appropriateness in handling complex models with numerous variables and its efficacy in managing smaller sample sizes. This analytical approach involves scrutinizing the relationships between variables, testing the hypotheses formulated in the study, and investigating the mediating role of Employee Skill Enhancement. Employing PLS-SEM allows for a robust examination of both the measurement and structural models, facilitating a comprehensive understanding of how AI implementation impacts HRM, Financial Management, and the mediating variable. The analytical process strictly adheres to established guidelines and standards in PLS-SEM, ensuring the study's findings' rigor and validity.

## 4. RESULTS AND DISCUSSION

In the questionnaire survey, a total 404 responses were collected. The analysis of collected responses is discussed in subsequent sub-sections;

### 4.1 General Information of Respondent

Table 1 presents a detailed breakdown of the demographic characteristics of the study participants, shedding light on the composition of the sample across various categories. Regarding gender distribution, the data reveals a nearly equal representation, with 48.8% of respondents identifying as male and 51.2% as female. Moving to age groups, participants are spread across different brackets, with 20.2% falling under the age of 25, 19.0% in the 25-34 years range, 20.9% in the 35-44 years range, 23.2% in the 45-54 years range, and 16.7% aged 55 years and above. In terms of educational attainment, the sample exhibits a diverse range of academic backgrounds. Approximately 32.5% of participants hold a Bachelor's degree, another 32.5% possess a Master's degree, and 35.0% have achieved a Doctorate or Professional Degree. This educational diversity enriches the dataset, enabling a more nuanced analysis of the impact of AI implementation across different educational levels. The distribution of work experience among respondents is equally varied. Participants with 0-2 years of experience constitute 18.7%, those with 2-4 years represent 20.4%, individuals with 4-6 years account for 19.0%, those with 6-8 years make up 21.9%, and participants with more than 8 years of experience contribute 20.0%. This distribution ensures a broad representation of professionals at different career stages, facilitating a comprehensive examination of the research questions.

**Table 1: General Information of Respondents**

Demographic Variables	Category	Frequency	Percentage
1. Gender	Male	198	48.8
	Female	208	51.2
2. Age group	Under 25 years	82	20.2
	25-34 years	77	19.0
	35-44 years	85	20.9
	45-54 years	94	23.2
	55 years and above	68	16.7
3. Education	UG	132	32.5
	PG	132	32.5
	PhD. or Professional Degree	142	35.0

4. Work Experience	0-2 years	76	18.7
	2-4 years	83	20.4
	4-6 years	77	19.0
	6-8 years	89	21.9
	More than 8 years	81	20.0

#### 4.2 Reliability and Validity Analysis of Constructs

Table 2 summarizes the reliability assessment of the key constructs in the study. The internal consistency of the measurement instruments is robust across all constructs, with high Cronbach's Alpha values—0.938 for Employee Skill Enhancement (ESE), 0.93 for Financial Management (FM), 0.936 for Human Resource Management (HRM), and 0.951 for Implementation of Artificial Intelligence (IOA). Both forms of composite reliability (rho\_a and rho\_c) surpass the recommended threshold of 0.7 for each construct, affirming the stability of the measurement models. The Average Variance Extracted (AVE) values further support the convergent validity of the constructs, with scores of 0.731 (ESE), 0.704 (FM), 0.723 (HRM), and 0.774 (IOA). Together, these reliability metrics affirm the robustness of the measurement instruments, instilling confidence in the validity of subsequent data analysis and interpretation within the study.

**Table 2: Reliability of the constructs**

Variables	Number of Items	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Employee Skill Enhancement (ESE)	7	0.938	0.94	0.95	0.731
Financial Management (FM)	7	0.93	0.93	0.943	0.704
Human Resource Management (HRM)	7	0.936	0.937	0.948	0.723
Implementation of Artificial Intelligence (IOA)	7	0.951	0.952	0.96	0.774

Table 3 presents the Heterotrait-Monotrait (HTMT) ratios, a key metric for evaluating discriminant validity between constructs. The ratios indicate the extent to which different constructs differ from each other compared to how much they overlap with themselves. The results demonstrate satisfactory discriminant validity, with ratios of 0.766 (FM <-> ESE), 0.754 (HRM <-> ESE), and 0.701 (HRM <-> FM), signifying clear distinctions between Financial Management (FM), Human Resource Management (HRM), and Employee Skill Enhancement (ESE). The Implementation of Artificial Intelligence (IOA) also exhibits sufficient discriminant validity with ratios of 0.741 (IOA <-> ESE), 0.781 (IOA <-> FM), and 0.736 (IOA <-> HRM). These findings affirm that each construct is distinct from others in the measurement model, validating the credibility of the study's variables and supporting the reliability of the data analysis and interpretation.

**Table 3: Validity of the constructs (HTMT Ratio)**

Path	HTMT Ratio
FM <-> ESE	0.766
HRM <-> ESE	0.754
HRM <-> FM	0.701
IOA <-> ESE	0.741
IOA <-> FM	0.781
IOA <-> HRM	0.736

### 4.3 Fit Indices of Conceptual Model

Table 4 displays the fitness indices for the conceptual model, providing insights into the degree of alignment between the model and the observed data. The Comparative Fit Index (CMIN/DF) stands at 1.833, falling below the recommended threshold of 3.0, indicating a commendable fit between the model and the data. The Root Mean Square Error of Approximation (RMSEA) is recorded at 0.0013, well beneath the suggested threshold of 0.08, signifying a closely fitting model to the population covariance matrix. The Comparative Fit Index (CFI) and Incremental Fit Index (IFI) values, measuring at 0.942 and 0.987, respectively, surpass the recommended threshold of 0.90, indicating a highly fitting model. Furthermore, the Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI) at 0.907 and 0.911, respectively, exceed the suggested threshold of 0.90. The Root Mean Square Residual (RMR) at 0.0012 falls below the 0.08 threshold, further confirming the model's adequacy. Despite the p-value of 0.321, suggesting the model's lack of statistical significance, the overall fit indices collectively affirm the favorable fit of the conceptual model to the observed data, validating its suitability for subsequent analysis and interpretation.

**Table 4: Fit indices of the conceptual model.**

	CMIN/DF	RMSEA	CFI	IFI	GFI	AGFI	RMR	P-Value
Model	1.833	0.0013	0.942	0.987	0.907	0.911	0.0012	0.321

### 4.4 Results of Hypotheses Testing

The first hypothesis posits a direct relationship between the AI implementation and HRM. The path coefficient of 0.634 suggests a strong positive association, indicating that as organizations implement AI, there is a substantial impact on HRM processes. The R-Square value of 0.848 suggests that a significant proportion of the variance in HRM can be explained by the implementation of AI. The p-value of 0.000 signifies that the null hypothesis is rejected, providing robust evidence to support the assertion that AI implementation significantly influences HRM practices.

The second hypothesis explores the direct impact of AI implementation on Financial Management (FM). The path coefficient of 0.612 implies a noteworthy positive relationship between IOA and FM. The R-Square value of 0.758 indicates a substantial proportion of the variance in FM is explained by the implementation of AI. With a p-value of 0.000, the null hypothesis is rejected, underscoring the significance of AI implementation in optimizing financial processes and decision-making within organizations.

Hypothesis 3 examines the direct influence of AI implementation on Employee Skill Enhancement (ESE). The path coefficient of 0.703 signifies a strong positive relationship, suggesting that as organizations embrace AI, there is a substantial impact on enhancing the skills of their workforce. The R-Square value of 0.494 indicates a considerable proportion of the variance in ESE is explained by IOA. The p-value of 0.000 supports the rejection of the null hypothesis, affirming that AI implementation significantly contributes to the enhancement of employee skills.

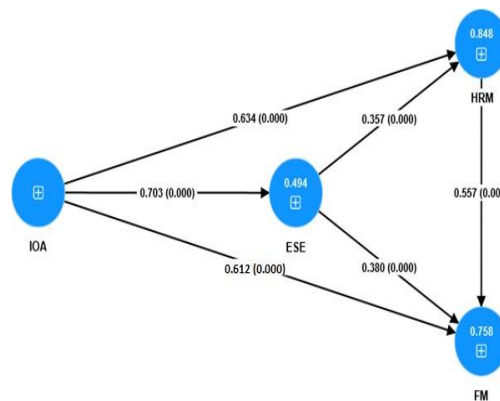
Hypothesis 4 introduces the mediating role of Employee Skill Enhancement in the relationship between AI implementation and Human Resource Management. The path coefficient of 0.250 signifies the indirect influence of AI on HRM through the enhancement of employee skills. Despite not having an R-Square value, the intermediary role of ESE is supported by the rejection of the null hypothesis (p-value: 0.000), indicating that the impact of AI on HRM is partially mediated by the enhancement of employee skills.

Similar to Hypothesis 4, Hypothesis 5 introduces the mediating role of Employee Skill Enhancement, this time in the context of Financial Management. The path coefficient of 0.267 suggests an indirect positive impact of AI on FM through the enhancement of employee skills. The intermediary role of ESE is supported by the rejection of the null hypothesis (p-value: 0.000), indicating that the relationship between AI implementation and FM is partially mediated by the enhancement of employee skills.

**Table 5: Hypotheses Testing**

Hypothesis	Path	Path Coefficient	R-Square	p-value	Null Hypothesis
H1	IOA → HRM	0.634	0.848	0.000	Rejected
H2	IOA → FM	0.612	0.758	0.000	Rejected
H3	IOA → ESE	0.703	0.494	0.000	Rejected
H4	IOA → ESE → HRM	0.250	-	0.000	Rejected
H5	IOA → ESE → FM	0.267	-	0.000	Rejected

As shown in Figure 1, the conceptual model illustrates the relationships tested in the hypotheses and their outcomes. Three main paths emanate from the Implementation of Artificial Intelligence (IOA) construct: one leading to Human Resource Management (HRM), another to Financial Management (FM), and a third to Employee Skill Enhancement (ESE). The solid lines connecting IOA to HRM, FM, and ESE represent the direct relationships tested in Hypotheses 1, 2, and 3, respectively, all of which are supported by the rejection of their respective null hypotheses. Additionally, dashed lines represent the mediating pathways explored in Hypotheses 4 and 5, leading from IOA to ESE and subsequently to HRM and FM. The rejection of these null hypotheses suggests a significant mediating role of Employee Skill Enhancement in linking AI implementation to improvements in HRM and FM. The model visually captures the key findings of the hypotheses testing, providing a comprehensive representation of the complex relationships among the studied constructs.



**Figure 1: Proposed Conceptual Model**

#### 4.5 Overall Discussion

The comprehensive analysis undertaken in this study provides valuable insights into the impact of AI implementation on HRM, FM and ESE. The findings support the hypotheses that posit significant direct relationships between the Implementation of Artificial Intelligence (IOA) and HRM, FM, and ESE. Moreover, the study unveils the mediating role of Employee Skill Enhancement in the relationships between AI implementation and advancements in HRM and FM.



The strong positive associations observed between IOA and HRM, FM, and ESE underline the transformative influence of AI technologies in organizational processes. AI's direct contributions to the efficiency of HRM and the optimization of financial decision-making are evident. The positive impact on Employee Skill Enhancement highlights AI's role in fostering a workforce adaptable to technological advancements. The mediating effect of Employee Skill Enhancement on the relationship between AI implementation and HRM/FM reinforces the importance of investing in employees' skill development amid technological transitions. This suggests that organizations can maximize the benefits of AI by concurrently focusing on cultivating a workforce with the necessary skills to leverage and adapt to AI technologies.

### **Implications of the Study**

The study's implications extend to both theoretical and practical domains. Theoretically, the findings contribute to the growing body of knowledge on the interplay between AI and organizational processes. The identified relationships and mediating pathways offer a nuanced understanding of how AI shapes HRM and FM practices and the pivotal role of employee skill enhancement in this dynamic.

Practically, the study provides actionable insights for organizations aiming to harness the benefits of AI. Recognizing the positive influence of AI on HRM efficiency and financial optimization, organizations are encouraged to strategically integrate AI technologies into these domains. Simultaneously, a proactive approach to employee skill development is emphasized, ensuring that the workforce is equipped to navigate the evolving technological landscape.

### **Applications of the Study**

The study's applications are relevant for organizations across various industries, particularly those in the private sector in the Indian context. Insights into the direct and mediating effects of AI on HRM, FM, and employee skills can inform strategic decision-making. Human resource professionals can leverage AI for streamlined talent management, recruitment, and employee development, while financial decision-makers can optimize processes through data-driven insights.

Practical applications extend to training and development initiatives within organizations. Tailoring programs to enhance employee skills in line with AI implementation can contribute to a more agile and resilient workforce. Additionally, the study's findings can guide policymakers and industry leaders in formulating guidelines and frameworks for responsible AI integration, ensuring ethical and equitable practices.

In conclusion, this study not only advances theoretical understanding but also provides actionable insights with practical implications for organizations navigating the transformative landscape of AI implementation. The intertwined relationships among AI, HRM, FM, and employee skills underscore the need for a holistic and adaptive approach to organizational management in the era of AI.

## **5. CONCLUSION**

In summary, this research offers an in-depth exploration of the transformative influence exerted by Artificial Intelligence (AI) on the realms of Human Resources Management (HRM) and Financial Management (FM) within organizational settings. The study thoroughly investigates the profound implications and changes brought about by AI implementation in these critical domains, aiming to provide a comprehensive understanding

of its effects on organizational dynamics. The research underscores the significant positive associations between AI implementation and the efficiency of HR processes, optimization of financial decision-making, and the enhancement of employee skill sets. Moreover, the study unveils the critical mediating role of employee skill enhancement, emphasizing the need for organizations to concurrently invest in workforce development to fully leverage the benefits of AI technologies. The implications of this research extend beyond theoretical exploration, offering actionable insights for businesses navigating the complexities of AI integration. As organizations strive to stay competitive in the contemporary landscape, understanding the nuanced relationships between AI, HRM, FM, and employee skills becomes paramount. The findings of this study not only contribute to the academic understanding of these dynamics but also provide a practical roadmap for strategic decision-making, guiding businesses in harnessing AI for holistic organizational enhancement in the evolving digital era.

The study's focus on private companies in India may limit the generalizability of findings, warranting future research to include diverse industries and global contexts. Future studies should explore the long-term ethical implications of AI in HRM and FM

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