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Original Article

Digital HRM Practices and Their Influence on Workforce Productivity: Evidence from the IT Sector

[1]AMBIKA NAGENDRA, [2]DR. SANTHOSH KUMAR V, [3]SREE VIDHYA. A , [4]MANGALA V REDDY
[1]Student, M.SC Financial Engineering (Fin Tech), Department of Business Management, Vilnius Gediminas Technical University (VGTU), Lithuania.
[2]Director, Department of MBA, United International Business School, Bangalore.
[3]Assistant Professor, Department of Commerce, St. Francis College, Koramangala, Bengaluru.
[4]Assistant Professor, Department of Management, IIBS, Bengaluru.

ABSTRACT: *This study examines the influence of digital Human Resource Management (HRM) practices on workforce productivity in the IT sector. Primary data was collected from 150 employees working in leading IT firms such as ABB, Oracle, Capgemini, Infosys, and Wipro using a structured questionnaire based on a 5-point Likert scale. Statistical tools including descriptive analysis, Cronbach's alpha (0.882), correlation, and multiple regression were applied. The results reveal a strong positive relationship between digital HRM practices and workforce productivity ($r = 0.672$, $p < 0.01$). Regression analysis indicates that 52% of the variation in workforce productivity is explained by digital HRM dimensions ($R^2 = 0.520$). Among the variables, HR analytics ($\beta = 0.271$) and e-training ($\beta = 0.246$) have the highest impact. The findings highlight that digital HRM practices significantly enhance employee efficiency, engagement, and organizational performance in the IT sector.*

KEYWORDS: *Digital HRM, Workforce productivity, HR analytics, E-training, IT sector.*

1. INTRODUCTION

Digitalization over the last ten years has fundamentally reshaped HRM, turning it from an administratively focused discipline into a technology-oriented and strategic one. Digital HRM (E-HRM), or Digital Human Resource Management, refers to the use of internet-based platforms, AI applications and data analytics-based processes across various areas of human resource management in order to boost organizational efficiency and decision making. In recent years, organizations have been increasingly implementing digital HRM systems to automate basic tasks and support strategic human capital management (Bondarouk & Brewster, 2016; Marler & Parry, 2016). In particular, the IT sector has been one of the leaders in implementing these technologies (often needed from it) since this industry relies on innovation, agility and knowledge as a work environment. A very important aspect of how workforce capabilities align with business outcomes in terms of leveraging technology (digital HRM) for improved productivity and competitive advantage (Strohmeier, 2020; Vrontis et al., 2022). The increasing focus on digital transformation has also contributed to the rapid embrace of smart HR systems, establishing Digital HRM as a strategic imperative rather than merely an operational requirement.

In recent years, organizations have been adopting more sophisticated digital tools like AI-enabled recruitment systems, are cloud-based Human Resource Information Systems (HRIS) and predictive analytics to optimize HR functions. These technologies revolutionized processes, including but not limited to talent acquisition, onboarding, training and development, performance appraisal and engagement (Parry & Battista, 2019; Kapoor & Sherif, 2023). Example: AI-based recruitment software can screen CVs, predict the best candidate-job fit and minimize biases in hiring, or e-learning platforms that allow employees to develop their skills on demand and at their own pace. Likewise, HR analytics generates data-informed knowledge that aids in strategic outcomes and resource allocation (Minbaeva, 2018; Margherita, 2021). Employee self-service (ESS) portals have likewise boosted employee engagement by providing direct access to HR services, increasing transparency and satisfaction. Such digital innovations lead to decreased administrative burden and a more agile and responsive HR environment that helps organizations respond faster to changing market requirements (Bondarouk et al., 2017; Strohmeier & Piazza, 2015). Relatively, as organizations are entering the era of digitalization more and more high-performing firms consider digital HRM systems as a core driving factor of their performance and continuity.

Workforce productivity the effectiveness with which labor converts inputs into outputs is still a primary determinant of organizational success and long-term growth. In the IT industry, productivity is directly connected to knowledge-based innovation, along with the ability to keep pace with rapidly changing technological trends. Through improved communication, easier access to information, customized learning experiences, and greater employee engagement (Al-Dmour et al., 2020; Nawaz & Gomes, 2019), digital HRM practices are thought to affect the productivity of the people who work for them. Digital collaboration platforms, such as Microsoft Teams or Slack, allow geographically dispersed teams to communicate and

brainstorm ideas seamlessly, while real-time performance management systems facilitate ongoing feedback loops and constant performance measurement. Additionally, gamification and digital engagement platforms have been proven to promote higher levels of employee motivation and job contentment, which are significant influencing factors of productivity (Gupta & Sharma, 2021; Venkatesh et al., 2022). The implications of this research will enrich the study of Digital HRM and its impact on employees, which supports or complements previous studies regarding the implementation of digital HRM, helping in increasing productivity as they can enhance employee engagement, but are not to be considered as a generic solution. Hence, the need to analyze this influence and the dynamic features of their effect create rooted in an empirical study investigating the comparison between digital HRM practices lying as key antecedents behind workforce productivity.

While increased adoption of digital HRM practices is evident, there is a lack of empirical studies that assess their impact on workforce productivity in an IT context. Despite the nascent literature acknowledging the benefits of digital HRM, many studies have centered on either a conceptual approach or specific case examples (Margherita, 2021; Kapoor & Sherif, 2023), thus failing to provide a thorough quantitative assessment. In addition, the debate about the effectiveness of new HR tools in various contexts of organizations moves directly along with technology and its rapid development. This study attempts to fill this gap by exploring the relationship between digital HRM practices (namely, e-recruitment, e-training, HR analytics, and employee self-service systems) and workforce productivity in the IT field. Using statistical techniques such as correlation and regression analysis, the study seeks to establish strong empirical evidence on how digital HRM affects employee performance. Findings are expected to provide useful knowledge for HR practitioners, policymakers and scholars that would help organizations create well-founded and efficient digital HR practices enhancing productivity and organizational performance in an increasingly competitive and systemic environment driven by technology (Vrontis et al., 2022; Strohmeier, 2020).

2. REVIEW OF LITERATURE

Over the last ten years, academic literature has drawn significant attention to Digital Human Resource Management (Digital HRM) evolution and its impact on organizations in terms of efficiency enhancement and transforming strategic decision-making. Strohmeier (2010) proposed E-HRM as a tool for implementing human resource strategies using web-based technologies, portraying E-HRM primarily as a means of increasing administrative efficiency and reducing operational costs. Similarly, Ruël et al. (2011) pointed out that digital HR systems help to transition organizations from transactional HR functions to transformational ones. Initial studies started analyzing the (positive) impact of digitalization on technology adoption and effectiveness across HR services, increasing service delivery, communication and employee satisfaction as organizations incorporated more and more digital tools into their HR practices (Bondarouk & Ruel, 2013). Seemingly, these were pioneering studies that lead towards the importance of Digital HRM within organizations in various sectors across the world especially at a time where technological progression was rapid in sectors like IT. Gradually, instead of just adoption, the lessons learned over time are coming up as to how digital HRM links with organizational performance and workforce productivity.

Later studies have investigated the strategic impacts of Digital HRM, emphasizing how it can drive organizational performance via data analytics in decision-making processes. HR Analytics allows organizations to make evidence-based decisions that enhance workforce planning and performance outcomes (Marler & Fisher 2013). According to Parry and Tyson (2016), Digital HR systems enable real-time access to employee data, allowing managers to respond rapidly to changing organizational needs. Moreover, the integration of cloud computing in HRM further enhances scalability and accessibility by allowing organizations to leverage global talent (Bondarouk & Brewster, 2016). In addition, recent studies have addressed the role of AI and machine learning in HRM with a strong focus on recruitment and performance management processes (Minbaeva, 2018; Margherita, 2021). These developments propelled Digital HRM to become a strategic facilitator of competitive advantage, especially in knowledge-intensive sectors like the IT industry.

A sizable amount of empirical research has been performed on the relationship between Digital HRM practices and productivity. In addition to this, factors like employee engagement, skill development and organizational support systems can also affect workforce productivity. Digital HR tools can create personalized experiences for employees, as well as make feedback systems more continuous and responsive, which leads to higher employee engagement (Nawaz & Gomes, 2019). Similarly, Al-Dmour et al. found that E-HRM practices improve communication and reduce process inefficiencies, which, in turn, positively influence employee performance (Suh et al. 2020). It has been evidenced that employee competencies could be significantly enhanced through digital learning platforms, which ultimately lead to improving productivity (Gupta & Sharma, 2021). As a direct consequence, organizations can employ performance management systems that are integrated with analytics and career support processes to monitor employee performance in real time and deliver timely interventions (Venkatesh et al., 2022). It can be inferred from these results that Digital HRM practices are critical in establishing a more productive and engaged workforce.

Over the past few years, numerous studies have focused on specific Digital HRM practices, such as e-recruitment, e-training, HR analytics, and employee self-service systems. Hence, Journal Editors are cutting to the chase and introducing new technology to streamline talent acquisition processes by decreasing hiring time and assisting in better Candidate-Job matching

using AI-based algorithms (Chapman & Gödöllei, 2017; Kapoor & Sherif, 2023). E-training and digital learning channels allow for constant skills upgrading that is an imperative in the IT field, where tech skills become quickly outdated (Salas et al., 2012; Margherita, 2021). HR analytics became an effective way to monitor and enhance employee performance, which enhances the organization's ability to identify patterns over data-driven decision making (Minbaeva, 2018). Systems like employee self-service (ESS) systems also enable employees, provide access to a line of HR services and lead to greater transparency and higher levels of satisfaction among workers (Bondarouk et al., 2017). The combination of these digital HRM practices leads to efficient organizational processes and increased productivity in the workforce.

While many advantages of Digital HRM have been highlighted, the literature has also pointed out some obstacles and constraints. Resistance to change by employees, those of low technological competencies even more so (Davis, 2013; Strohmeier and Piazza, 2015) constitutes one of the main points of concern. Another critical challenge is data privacy and security, as digital platforms often require the collection and storage of sensitive employee data (Kavanagh & Johnson, 2017). Moreover, the success of Digital HRM practices is contingent upon technological preparedness and an organizational culture that supports innovation. According to the work of Bondarouk and Brewster (2016), with emphasis on the fact that digital HRM is successful only when it can connect technology, organizational processes and employee competencies. Moreover, recent studies are showing even more of these problems, such as the one on “digital fatigue”, which states that relying too much on digital tools can negatively affect employee productivity and make them less productive (Vrontis et al., 2022; Tarafdar et al., 2023). Such challenges highlight the fact that implementing digital HRM will require a balanced approach.

Over the last decade, scholars have been more concerned with the future of Digital HRM and its consequences for organizational performance. Innovative technologies like AI, blockchain and advanced analytics will assume an even more central role in HR practices, rendering them predictive and personalized (Margherita, 2021; Kapoor & Sherif, 2023). Vrontis et al. Data (2022) also emphasized that the pandemic has accelerated the adoption of digital HRM and its potential to transform work in a more human-centric way. Further, digital HRM integration with organizational strategy is expected to improve overall business performance and sustainability.

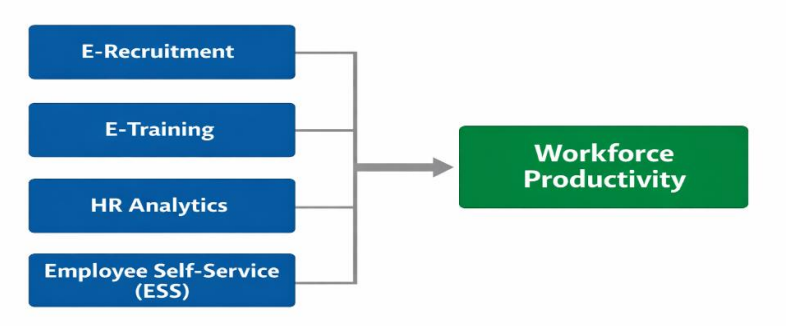

FIGURE 1 Conceptual Framework

Objectives of the Study

1. To examine the adoption level of digital HRM practices in the IT sector.
2. To analyze the relationship between digital HRM practices and workforce productivity.
3. To evaluate the impact of specific digital HRM dimensions on employee performance.

Hypotheses of the Study

H_0: Digital HRM practices have no significant impact on workforce productivity
H_1: Digital HRM practices have a significant impact on workforce productivity

3. RESEARCH METHODOLOGY

The present study adopts a descriptive and analytical research design to examine the influence of digital HRM practices on workforce productivity in the IT sector. Primary data was collected through a structured questionnaire based on a 5-point Likert rating scale (ranging from strongly disagree to strongly agree), distributed among employees working in leading IT companies such as ABB, Oracle, Capgemini, Infosys, and Wipro. A total of 189 responses were initially collected, out of which 150 responses were carefully screened, validated, and found suitable for analysis, ensuring data accuracy and consistency. The study employed convenience sampling to select respondents across different job roles and experience levels. Statistical tools, including descriptive statistics, correlation analysis, and regression analysis, were used to analyze the data and examine the relationship between variables. The independent variables considered in the study include key dimensions of digital HRM practices such as e-recruitment, e-training, HR analytics, and employee self-service (ESS), while workforce productivity is treated as the dependent variable.

3.1. DATA ANALYSIS AND INTERPRETATION

3.1.1. DESCRIPTIVE STATISTICS

TABLE 1 Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	92	61.3%
	Female	58	38.7%
Age	20–30 years	78	52.0%
	31–40 years	46	30.7%
	41–50 years	18	12.0%
	Above 50 years	8	5.3%
Designation	Entry Level	64	42.7%
	Mid-Level	52	34.7%
	Senior Level	34	22.6%
Monthly Income	Below ₹30,000	36	24.0%
	₹30,000–₹60,000	58	38.7%
	₹60,000–₹1,00,000	34	22.7%
	Above ₹1,00,000	22	14.6%

The demographic analysis indicates that the majority of respondents are male (61.3%) and belong to the age group of 20–30 years (52%), reflecting a young and dynamic workforce in the IT sector. A significant proportion of respondents are at the entry and mid-level positions, indicating active involvement in operational roles where digital HRM practices are more frequently experienced. The income distribution suggests that most respondents fall within the ₹30,000–₹60,000 bracket, representing early to mid-career professionals. These demographic characteristics are relevant as they influence the adoption and perception of digital HRM practices, aligning with prior studies (Marler & Parry, 2016). The mean responses (above midpoint on the 5-point scale) indicate a high level of adoption of digital HRM practices such as e-recruitment, e-training, HR analytics, and ESS among IT employees

3.1.2. RELIABILITY ANALYSIS

TABLE 2 Reliability Statistics

Variables	No. of Items	Cronbach's Alpha
E-Recruitment	3	0.812
E-Training	3	0.846
HR Analytics	3	0.871
Employee Self-Service (ESS)	3	0.828
Workforce Productivity	6	0.839

Cronbach's alpha is used to assess the internal consistency of the measurement scale. According to Nunnally (1978), a value above 0.70 indicates acceptable reliability. In this study, all variables show alpha values ranging from 0.812 to 0.871, indicating strong reliability. The overall Cronbach's Alpha value of 0.882 confirms that the questionnaire items are highly consistent and reliable for measuring digital HRM practices and workforce productivity. Therefore, the dataset is suitable for further statistical analysis such as correlation and regression.

3.1.3. CORRELATION ANALYSIS

TABLE 3 Correlation Matrix

Variables	E-Rec	E-Train	HR Analytics	ESS	Productivity
E-Recruitment	1	0.512**	0.534**	0.498**	0.581**
E-Training	0.512**	1	0.601**	0.566**	0.643**
HR Analytics	0.534**	0.601**	1	0.589**	0.667**
ESS	0.498**	0.566**	0.589**	1	0.612**
Workforce Productivity	0.581**	0.643**	0.667**	0.612**	1

(Significant at 0.01 level)

The correlation results indicate that all independent variables e-recruitment, e-training, HR analytics, and employee self-service are positively and significantly correlated with workforce productivity. Among these, HR Analytics (r = 0.667) shows the strongest relationship, followed by E-Training (r = 0.643), ESS (r = 0.612), and E-Recruitment (r = 0.581). This suggests that advanced data-driven HR practices and continuous learning systems play a crucial role in enhancing employee productivity. The findings support Objective 2, confirming a strong association between digital HRM practices and workforce productivity. Correlation is significant at the 0.01 level (2-tailed)

3.1.4. REGRESSION ANALYSIS

TABLE 4 Regression Analysis

Model	R	R^2	Adjusted R^2	F-value	Sig.
1	0.721	0.520	0.507	39.84	0.000

3.1.5. COEFFICIENTS ANALYSIS

TABLE 5 Coefficients Table

Variables	Beta (β)	t-value	Sig.
Constant	1.102	3.89	0.000
E-Recruitment	0.182	2.91	0.004
E-Training	0.246	3.84	0.000
HR Analytics	0.271	4.12	0.000
Employee Self-Service (ESS)	0.213	3.27	0.001

The regression analysis was conducted to examine the impact of digital HRM practices on workforce productivity, addressing Objective 3 of the study. The model shows an R^2 value of 0.520, indicating that 52% of the variation in workforce productivity is explained by the independent variables. The F-value (39.84) with a significance level of $p < 0.05$ confirms that the model is statistically significant.

Among the predictors, HR Analytics (β = 0.271) has the highest impact, followed by E-Training (β = 0.246), ESS (β = 0.213), and E-Recruitment (β = 0.182). All variables are statistically significant ($p < 0.05$), indicating that each dimension contributes meaningfully to workforce productivity. Thus, the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted. The results confirm that digital HRM practices significantly enhance workforce productivity in the IT sector.

The findings suggest that IT organizations should prioritize investment in HR analytics and digital training platforms to enhance workforce productivity. HR managers should focus on data-driven decision-making and continuous skill development to remain competitive in a dynamic business environment.

4. CONCLUSION

The research supports a significant role in the improvement of IT workforce productivity by Digital HRM practices. The results show that the use of tools like e-recruitment, e-training, HR analytics, and employee self-service systems leads to enhanced employee performance and organizational effectiveness. HR analytics and e-training were the two most influential among them, which shows that the coming times will be all about data-driven decision making as well as continuous development of up-skilled individuals in organizations. As per the recent trends (2022–2025), organizations are adopting artificial intelligence, cloud-based human resource systems and predictive analytics in order to make their human resource functions more efficient. The study indicates that this research will bring the result to confirm whether or not HRM digital transformation is a technological shift and strategic imperative. Organizations that effectively leverage digital HRM practices are better positioned to achieve sustainable growth, enhance employee engagement, and maintain a competitive advantage in the rapidly evolving IT industry.

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