



HUMAN RESOURCE (HR) DIGITIZATION AND ORGANISATIONAL PERFORMANCE: A REVIEW OF CONTEMPORARY PRACTICES AND PERFORMANCE OUTCOMES

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Abstract:

The digitalization of human resource management is increasingly central to organizations' strategic plans worldwide. Yet the question remains whether these investments deliver tangible benefits to business results. In this paper, we analyze recent meta-analytic findings and concrete examples from practice to clarify the conditions under which digitizing the HR function contributes to better organizational outcomes. We analyze three channels through which digital HR systems influence performance: operational efficiency, strategic workforce analytics, and employee experience, using the resource-based view and dynamic capabilities theory. Meta-analytic evidence from 96 studies with 37,924 participants reveals medium-sized performance effects, though significantly stronger for operational efficiency than for strategic transformation. Implementation cases from IBM, Croatia, and Unilever illustrate a striking pattern: success depends far more on how organizations implement technology than on which technology they choose. Effective implementations prioritize workforce capability development, user-centered design, and strategic alignment rather than technological sophistication. However, our analysis reveals the paradoxical nature of digital HRM: while productivity improves, poorly designed systems simultaneously create employee stress and surveillance concerns. We identify four critical success factors that distinguish effective from problematic implementations and conclude with implications for both theory and practice.

Keywords:

Digital HRM, Organisational Performance, Employee Experience, Meta-Analysis, Implementation Success Factors.

INTRODUCTION

The digitalisation of human resource management represents one of the most significant transformations reshaping contemporary organisational practice. What began as modest automation of administrative tasks has transformed into comprehensive digital ecosystems with artificial-intelligence-driven recruitment, predictive workforce analytics, and integrated employee-experience platforms. The COVID-19 pandemic significantly sped up this change, compelling organizations to quickly digitize HR processes and reevaluate how work is structured and supervised [1].

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Regardless of substantial investments organisations have made in digital HR technologies (the global HR technology market reached USD 40.45 billion in 2024 and is projected to grow to USD 81.84 billion by 2032), considerable uncertainty remains regarding the actual performance benefits of these investments [2]. Although technology vendors advocate for transformative technological progress, empirical evidence from academic research remains inconclusive. Theres and Strohmeier's meta-analysis of 96 studies (37,924 participants) demonstrated significant medium-sized associations between digital HRM and performance, though effects were notably stronger for operational efficiency than for strategic transformation. Their results indicated that benefits vary significantly across geographic areas and implementation methods, with effects increasing over time [3]. Artificial intelligence has become essential to digital HR transformation, fundamentally changing recruitment, talent management, and employee development processes. Emerging evidence from systematic reviews indicates that AI adoption can significantly improve organizational efficiency, but the organizations that achieve the best results are those that balance performance gains with employee well-being, thereby laying the groundwork for sustainable competitive advantage in the digital age [4]. This divergence indicates that the link between HR digitalisation and organisational performance is much more intricate than what straightforward technology adoption models propose. This review paper explores a key research question: How and under what circumstances does HR digitalisation enhance organisational performance?

Our analysis is built on three complementary approaches. First, we synthesize recent theoretical and empirical studies to clarify how digitalization influences performance outcomes. Second, we review practical implementation cases from various organizations and regions to demonstrate how digitalization effects appear in real-world settings. Third, we identify key contingency factors that explain why previous research findings have been inconsistent. This analysis adds to the growing literature on digital HRM by offering practitioner-oriented guidance grounded in both theoretical insights and empirical data.

2. THEORETICAL FRAMEWORK AND EMPIRICAL EVIDENCE

Our theoretical framework relies on two complementary perspectives to understand how HR digitalization creates and maintains competitive advantage. First, we use the resource-based view to conceptualize digital HR as an organizational capability that boosts the firm's ability to attract, develop, and strategically deploy human capital. Next, we explore dynamic capabilities theory to understand how organizations adapt and reconfigure their human resources amid rapidly changing environments. We also incorporate recent meta-analytic data assessing the impact of digital HRM on performance across different organizational settings.

2.1. RESOURCE-BASED VIEW AND DYNAMIC CAPABILITIES PERSPECTIVE

The resource-based view offers a foundational theoretical perspective on how HR digitalization produces a competitive advantage [5]. Based on the RBV, a sustainable competitive advantage arises from organizational resources and capabilities that are valuable, rare, inimitable, and non-substitutable. When correctly set up and implemented, digital HR systems serve as organizational capabilities that improve the organization's ability to attract, develop, and strategically utilize human capital [6]. However, the key insight from RBV is that technology alone does not constitute a strategic resource. Instead, competitive advantage comes from organizational capabilities related to technology deployment, such as extracting insights from workforce data, redesigning processes around digital workflows, and fostering employee acceptance of new systems. This view clarifies why the same HR technologies can lead to very different performance across organizations.

The digital transformation of the Human Resources (HR) function has shifted from a secondary trend to a strategic necessity, with 85% of organizations now incorporating digital tools into their core processes. The widespread use of cloud-based systems (63%), combined with the rising adoption of AI-powered recruitment tools (52%) and digital learning platforms (48%), highlights a significant move toward technological maturity. This systematic digitalization process not only improves HR operational efficiency but also plays a crucial role in boosting overall organizational performance [7]. This technological shift, however, goes beyond simply adopting new tools; digital transformation is an ongoing process of integrating emerging digital technologies



into daily organizational practices. In this process, agility is the key driver of strategic renewal across three main areas: business model innovation, collaborative approaches, and organizational culture [8].

2.2. META-ANALYTIC EVIDENCE ON DIGITAL HRM PERFORMANCE EFFECTS

Recent meta-analytic studies increasingly provide systematic empirical support for the relationships among these theories. A comprehensive meta-analysis of 96 empirical studies involving 37,924 participants found significant medium-sized correlations between digital HRM and performance across user, operational, relational, transformational, and corporate domains [3]. The study showed that digital HRM is generally successful and meets performance expectations. Effect sizes differed widely across performance categories, with much stronger impacts on operational performance metrics than on strategic outcomes. This pattern shows that current digital HR implementations may be achieving efficiency benefits more than strategic capabilities, a finding with important implications for how implementations are prioritized. Supporting these results, another meta-analysis examining the drivers and outcomes of e-HRM adoption across countries found that technology, organizational, and social factors collectively reliably predict e-HRM success and are positively linked to overall organizational performance [9]. Zhou and colleagues' analysis revealed stronger effects on operational performance than strategic outcomes, a pattern consistent with Theres and Strohmeier's findings, and identified important cross-national moderators, including ICT development level and human capital quality, that influence the digitalisation-performance relationship. Their findings underscore that digital HRM's effectiveness varies substantially across geographical and developmental contexts, with organisations in less developed economies often reporting larger effect sizes, possibly reflecting both lower baseline levels of digitisation and

greater perceived impact of innovation. This evidence indicates that organizations must carefully consider contextual factors, including national ICT infrastructure, workforce digital literacy, and cultural readiness, when designing digital HR implementation strategies, rather than adopting one-size-fits-all approaches developed in highly digitized Western-country contexts.

Table 1 compares findings from two meta-analyses involving over 37,924 participants, both of which show that digital HRM implementations currently succeed more in improving operational performance than in achieving strategic outcomes. Interestingly, organizations in less developed economies often report significantly larger performance gains, likely due to lower initial levels of digitalization and the greater perceived impact of introducing these innovations.

2.3. EMPLOYEE EXPERIENCE: DUAL NATURE OF DIGITAL HRM

Our review of empirical evidence identifies three primary channels through which HR digitalisation impacts organisational performance. We begin by analyzing operational efficiency and strategic analytics as complementary tools, then move on to the crucial yet often-neglected aspect of employee experience. The operational efficiency channel functions through automating routine administrative tasks, reducing transaction processing times, and minimizing errors in payroll and benefits administration [9]. These efficiency gains translate into lower HR operational costs and more time for HR staff to spend on high-value strategic activities. Meta-analytic evidence confirms that digital HRM has the strongest effects on operational HR performance metrics, including efficiency and cost savings [3]. However, these gains are not consistent. Organizations using manual, paper-heavy systems see more significant improvements than those already with advanced digital infrastructure. Research shows that efficiency gains are greatest when digitalization includes process redesign rather than merely

Table 1. Meta-Analytic Evidence on Digital HRM Performance Effects

Meta-Analysis	Scope	Key Performance Findings	Moderators Implications	Implications
Theres & Strohmeier [3]	96 studies, 37,924 participants	Medium-sized associations; operational > strategic performance	Performance category	Current implementations realize efficiency more than strategic benefits
Zhou et al. [9]	XX studies, cross-national	Positive organisational performance; operational > strategic	ICT development level, human capital quality, and national context	Effectiveness varies by geographical/developmental context; larger effects in less developed economies

Source: Created by the author based on meta-analytic findings from [3] and [9]



automating current workflows [10]. The strategic workforce analytics channel employs systematic data analysis to support evidence-based HR decisions. This involves predictive analysis of future workforce needs, monitoring competency trends, and facilitating more strategic talent management [11]. HR analytics risks becoming a management fad when it relies on an 'inside-out,' HR-centric approach led by Centers of Expertise that are disconnected from the business. A shift toward an 'outside-in' approach, emphasizing actionable, high-impact analytics, is necessary to ensure that analytics insights drive strategic business decisions [12].

Importantly, these positive effects become stronger when employees find the technology easy to use. The employee experience channel operates by providing convenient access to services, enabling personalized HR practices, and signaling organizational modernity and investment in employee support [13]. Well-designed digital HR systems can improve employee perceptions of organizational support, boost commitment, and increase engagement. However, this approach carries notable implementation risks. Although digital HRM technologies offer benefits, they also present real challenges regarding employee privacy and workplace monitoring. Employees frequently voice worries about feeling constantly monitored by digital systems, which can undermine trust and increase stress [14]. Recent research on the paradoxical aspects of digital HRM has shown that although digitalisation can boost employee productivity and foster organisational innovation, it can also increase work-related stress and diminish the quality of workplace relationships if not implemented carefully [15]. This dual nature highlights the significance of adopting user-centred design principles and engaging employees in system development processes.

3. IMPLEMENTATION EVIDENCE FROM PRACTICE

The employee experience channel functions by offering easy access to services, supporting personalized HR practices, and improving the connection between employees and the organization's communication. Well-designed digital HR systems can significantly alter how employees perceive organisational support, thereby boosting commitment and engagement. However, recent research reveals a more complex picture.

3.1. CONTEMPORARY CASE STUDIES

Research in Chinese manufacturing contexts revealed a paradox: although digital HRM systems improved employees' innovative performance, they also unexpectedly encouraged counterproductive behaviors, such as increased cyberloafing [16]. This suggests that digital monitoring might unintentionally undermine the productivity gains organizations aim for. A detailed study of 351 organizations across various sectors uncovered the more serious implications. Some implementations turned digital HR platforms into oppressive surveillance systems for employees, subjecting workers to constant monitoring, algorithmic oversight, and continuous technological pressure [17]. Although overall performance metrics improved, individual mental health scores dropped significantly. Workers reported feeling constantly watched, with their independence limited by algorithmic decisions that left little space for human judgment. European case studies offered further insight. Digital platforms enhanced workplace communication and engagement when tailored to user needs. However, these same implementations simultaneously intensified time pressure and worsened work-life balance, as platforms designed for flexibility paradoxically enabled work to colonise personal time [18]. This dual nature exposes a key insight: effective digital HRM relies more on careful implementation than on advanced technology.

Table 2. Digital HRM Implementation Outcomes

Organisation	Implementation Approach	Key Outcomes	Critical Factor
IBM [19]	AskHR AI agent (275,000+ employees, 170+ countries)	40% cost reduction; 94% automation; 99% adoption	User-focused design supporting staff
Croatia [20]	National Digital Strategy 2032 (€93M investment)	Limited success; Workforce skill gaps persist	Technology without capability development
Unilever [21]	Integrated Operations (23,000 AI-trained employees)	27% productivity growth; 79-98% engagement	Strategic alignment; holistic approach

Source: Created by the author based on [19], [20], and [21]



User-centered design and genuine employee involvement are vital requirements, not optional enhancements. When employees perceive digital systems as surveillance tools rather than supportive resources, even the most advanced technology becomes a source of resistance rather than a competitive advantage. Organizational implementation cases across various contexts support these findings (Table 2). IBM's deployment across 275,000 employees achieved impressive results: reducing costs by 40% and reaching 99% manager adoption by creating automation that supported rather than replaced human judgment [19]. Croatia's contrasting experience offers a lesson: despite investing 93 million euros in technology, its national digital strategy faced challenges because basic workforce skills gaps were still unaddressed [20]. Unilever's success illustrates a third approach: training 23,000 employees in AI, combined with HR digitalization, led to significant productivity increases (27%) and high engagement scores (79-98%) [21]. Table 2 illustrates a key point: effective digital HRM relies more on how organizations deploy technology than on their spending amounts. Success and failure are determined more by workforce development and user-focused design than by technological complexity.

3.2. CRITICAL SUCCESS FACTORS

Sociotechnical design quality is fundamental. IBM's 99% manager adoption rate shows that user-focused systems that support human judgment encourage enthusiastic acceptance, whereas surveillance-driven implementations elicit resistance despite their technical sophistication [17, 19]. Employees clearly differentiate between tools that assist and those that monitor. When systems are perceived as surveillance tools, any increase in productivity often leads to declining mental health and reduced engagement. Developing workforce capabilities is crucial. Croatia's €93 million investment yielded limited results due to persistent capability gaps, including a shortage of ICT specialists, inadequate training infrastructure, and skills misalignment, which were not addressed [20]. Successful implementations, such as Unilever's, acknowledge that transformation depends on systematic capability development, including training 23,000 employees, rather than relying solely on technology to drive change. Strategic alignment determines whether digitalisation provides a competitive edge or merely automates inefficiencies. Unilever's success shows that integrating HR digitalisation into a comprehensive enterprise transformation is more effective than treating it as a standalone HR project [21]. Digital HRM

should facilitate fundamentally different approaches to talent management, rather than merely speeding up traditional methods. Contextual adaptation influences the results substantially. Meta-analytic evidence shows that implementation effectiveness varies widely across developmental contexts, with notably larger effects observed in less developed economies [3, 9]. Organizations should avoid one-size-fits-all solutions and instead evaluate specific technological maturity, workforce capabilities, and cultural readiness before implementing changes.

4. DISCUSSION AND IMPLICATIONS

The evidence shows a key pattern: the quality of implementation is much more important than the specific technology choice. IBM and Unilever prospered not because they selected better software, but because they invested in workforce skills, created systems that truly support employees, and incorporated digitalization into their overall business strategy. Croatia invested €93 million but saw limited results due to the absence of essential organizational foundations. These questions challenge typical beliefs regarding digital transformation. Competitive advantage arises from capabilities like workforce digital literacy, thoughtful process redesign, and genuine employee acceptance, not just from software features. Organizations that lack these readiness factors should develop the necessary capabilities either before or alongside technology deployment, rather than waiting until systems fail to meet expectations. Practitioners often overlook that productivity gains typically come at a cost. Systems that increase overall metrics but make employees feel constantly watched can cause resistance and harm mental well-being. This dual nature is not a flaw in implementation; it is intrinsic to digital HR systems. Effective organizations acknowledge this fact and intentionally address conflicts using user-centered design rather than relying solely on technology to deliver benefits. The practical implications are straightforward: focus on developing organizational capabilities first, prioritize the employee experience alongside efficiency, and tailor implementations to specific contexts rather than replicating solutions from other environments.



5. CONCLUSION

This review shows that the impact of digital HRM's performance depends mainly on how organizations design, implement, and manage these systems, rather than on technological sophistication alone. Our analysis uncovers three main ways digital HR affects organizational performance: operational efficiency, strategic analytics, and employee experience. Currently, implementations tend to prioritize efficiency over the potential for strategic transformation. The evidence highlights four key success factors. First, sociotechnical design focusing on user experience over surveillance affects acceptance or resistance. Second, workforce capability development is crucial, as tech investments fail without digital literacy. Third, aligning with organizational goals ensures competitive benefits over simple automation. Fourth, adapting to organizational and national contexts significantly affects success, with outcomes varying across developmental stages. Organizations considering digital HR investments must choose between technology-focused approaches that emphasize features and automation, or human-centered strategies that view digitalization as a means to improve organizational capabilities and the employee experience. The evidence consistently supports the human-centered approach. Successful implementations achieve performance improvements because they invest in both people and technology, not in spite of them. Looking ahead, the rapid development of AI, especially in generative AI and advanced analytics, will continue to transform digital HRM opportunities. Our findings indicate that core principles will remain consistent: organizations that focus on workforce development, build systems based on real user needs, and effectively manage the tensions of digitalization will continue to outperform those that view digital transformation primarily as a technology purchase. The future of HR digitalization goes to organizations that effectively combine technology with human skills to build lasting competitive advantages, not just those with the most advanced systems. Research focuses on Western economies despite evidence indicating varying effects in developing contexts. Most studies employ cross-sectional designs, which limit the ability to make causal inferences about the relationships between digitalization and performance. Published research probably exaggerates successes and minimizes failures. Furthermore, depending on the results of organizational-level analyses, significant differences in how various employee groups experience digital HR systems might be obscured. Future research should adopt longitudinal studies to

track implementation over time and include diverse geographical settings to improve generalizability. As AI and digital ecosystems develop swiftly, evidence can quickly become outdated. Future studies should also focus more on employee diversity and their views on digitization and AI trends. The goals should focus on increasing employee satisfaction by highlighting their unique human skills that AI cannot imitate. Promoting self-evaluation and recognizing individual uniqueness can improve organizational performance.

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