

**THE EFFECT OF DIGITALIZATION OF HR MANAGEMENT ON EMPLOYEE
PRODUCTIVITY IN THE ERA OF TECHNOLOGY-BASED ECONOMY**

**PENGARUH DIGITALISASI MANAJEMEN SUMBER DAYA MANUSIA
TERHADAP PRODUKTIVITAS KARYAWAN DI ERA EKONOMI BERBASIS
TEKNOLOGI**

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ABSTRACT

The development of a technology-based economy encourages organizations to undertake digital transformation across various aspects, including human resource management (HR). This study aims to analyze the influence of digitalization of HR management on employee productivity in the era of a technology-based economy. The research method used is a qualitative approach within the library research type. Research data were obtained from various reputable scientific literature, especially from Scopus-indexed international journals published in the last five years. The results of the study show that the digitization of HR management through the implementation of HR Information Systems, e-recruitment, e-learning, HR analytics, and digital-based performance management systems has a positive impact on increasing employee productivity. Digitization of human resources can improve the efficiency of work processes, enhance decision-making quality, and encourage innovative work behavior and employee engagement. However, the effectiveness of human resource digitalization is greatly influenced by organizational readiness factors, employee digital competence, leadership support, and a work culture that is adaptive to technology. This study concludes that the digitalization of HR management is an essential strategy for increasing employee productivity, but its success requires careful implementation planning and sustainable HR capacity-building.

Keywords: Human Resource Digitalization, Human Resource Management, Employee Productivity, Digital Transformation, Technology-Based Economy

ABSTRAK

Perkembangan ekonomi berbasis teknologi mendorong organisasi untuk melakukan transformasi digital di berbagai aspek, termasuk manajemen sumber daya manusia (SDM). Penelitian ini bertujuan untuk menganalisis pengaruh digitalisasi manajemen SDM terhadap produktivitas karyawan di era ekonomi berbasis teknologi. Metode penelitian yang digunakan adalah pendekatan kualitatif dalam jenis penelitian perpustakaan. Data penelitian diperoleh dari berbagai literatur ilmiah yang terpercaya, terutama dari jurnal internasional yang terindeks Scopus yang diterbitkan dalam lima tahun terakhir. Hasil penelitian menunjukkan bahwa digitalisasi manajemen SDM melalui implementasi Sistem Informasi SDM, perekrutan daring, pembelajaran daring, analitik SDM, dan sistem manajemen kinerja berbasis digital memiliki dampak positif dalam meningkatkan produktivitas karyawan. Digitalisasi sumber daya manusia dapat meningkatkan efisiensi proses kerja, meningkatkan kualitas pengambilan keputusan, dan mendorong Perilaku kerja inovatif dan keterlibatan karyawan. Namun, efektivitas digitalisasi sumber daya manusia sangat dipengaruhi oleh faktor kesiapan organisasi, kompetensi digital karyawan, dukungan kepemimpinan, dan budaya kerja yang adaptif terhadap teknologi. Studi ini menyimpulkan bahwa digitalisasi manajemen sumber daya manusia merupakan strategi penting untuk meningkatkan produktivitas karyawan, namun kesuksesannya memerlukan perencanaan implementasi yang cermat dan pembangunan kapasitas sumber daya manusia yang berkelanjutan.

Kata Kunci: Digitalisasi Sumber Daya Manusia, Manajemen Sumber Daya Manusia, Produktivitas Karyawan, Transformasi Digital, Ekonomi Berbasis Teknologi

INTRODUCTION

The development of a technology-based economy encourages organizations to reorganize the way they

work, structure, and conduct business processes to be faster, more accurate, and data-based. In this context, the human resource management (HR) function has

also transformed from a manual administrative process to a digital process that utilizes platforms, algorithms, and analytics for decision-making. This change expands HR's scope beyond administrative management to encompass capabilities, employee experience, and the creation of strategic organizational value (Meijerink et al., 2021).

Digitalization of HR Management (often referred to as digital HRM/e-HRM) includes implementing systems such as e-recruitment, e-learning, e-performance management, HR analytics, and HR service automation. The use of digital channels, such as social media, has also been shown to be relevant to HR processes and can be linked to organizational performance when managed appropriately and integrated (Vardarlier & Ozsahin, 2021). This digitalization is not just the adoption of technology, but a change in processes and work patterns that demand alignment among strategies, culture, and human resource competencies.

Recent literature shows that HR practices play an important role in the successful implementation of digital transformation. A study in the *International Journal of Manpower* confirms that certain HR practices (e.g., work arrangements, collaboration, and employee engagement) are related to the implementation of digital transformation, making HR a "lever" that bridges digital strategy and execution at the employee level (Nicolás-Agustín et al., 2022). This means that HR digitization needs to be seen as a system that influences work behavior, not just as software that replaces old procedures.

In terms of outcomes, empirical research also shows a positive relationship between digital HR practices and performance/productivity. For example, research on SMEs in China

found that digital HR practices can increase work productivity through digital transformation mechanisms and innovative work behavior as a path of influence (Zhang et al., 2024). These findings reinforce the argument that HR digitalization can increase productivity by speeding up processes, clarifying performance feedback, and encouraging more innovative work behaviors.

In addition, the quality of leadership and the design of HR practices that "involve" employees are also influential in the context of digital work. A study in *Heliyon* shows that digital leadership is associated with improved employee digital performance, mediated by high-involvement HRM practices and employee dynamic capabilities (Wang et al., 2024). In other words, effective HR digitization does not stand alone; it requires HR practices that strengthen participation, learning, and adaptability to grow productivity sustainably.

At the implementation level, e-HRM is also associated with improved engagement and work efficiency, which is theoretically close to productivity. A review in *Administrative Sciences* highlights how e-HRM tools can relate to employee engagement, which is often considered an important prerequisite for performance and productivity (Stachová et al., 2024). Meanwhile, a systematic study of digital technology and HR practices confirms that the digital theme of HR is rapidly developing, impacting contemporary HR management practices and raising challenges such as competency readiness and data governance (Shiferaw & Birbirs, 2025).

Departing from these dynamics, the research entitled "The Influence of HR Management Digitalization on Employee Productivity in the Technology-Based Economy Era" is relevant to explain the extent to which

HR digitalization really contributes to productivity, as well as through what mechanisms it influences (for example, through work process transformation, behavioral innovation, digital leadership, or engagement). Empirical studies are also important because organizational contexts (sectors, size, digital maturity levels) can yield different outcomes, so specific testing is needed within the context being studied (Zhang et al., 2024; Nicolás-Agustín et al., 2022). Ultimately, the research findings are expected to make a theoretical contribution to the development of the HRM digital literature and to have practical implications for organizations in designing HR digitalization strategies that directly impact productivity.

Literatur Review

The digitalization of HR Management (often written as digital HRM/e-HRM/DHRM) in the literature over the last 5 years is presented as a shift from administrative HR to data-driven, platform-based, and automation-driven HR. One of the most prominent concepts is *algorithmic HRM*, which uses digital data and algorithms to support—and even automate — HR decision-making (e.g., selection, performance appraisals, scheduling, and work supervision). Important contributions in this period emphasize the issue of *construct clarity* (overlapping digital HRM terms, HR analytics, AI-HRM) as well as the push for research to build a more coherent framework to connect "digital HR practices" with organizational and employee outcomes (Meijerink et al., 2021).

From the perspective of digital transformation implementation, the study also emphasizes that HR digitalization is not just the adoption of applications, but a package of work practices that enable organizations to carry out transformation effectively.

Empirical evidence at the organizational level shows that HR practices such as teleworking, teamwork, and employee engagement are key parts of fostering innovative behaviors that facilitate the digital transformation process (Nicolás-Agustín et al., 2022). This indicates that digitized HR "works" when its practices align with employee strategies, work structures, and behaviors rather than when it stands alone as an information system.

The relationship between digital HRM and productivity is increasingly strong, as shown by research that traces the *mechanism* (path of influence). For example, research on SMEs in China found that digital HR practices affect work productivity through digital transformation and innovative work behavior (as mediators), and the role of disruptive innovation as a contingency factor was also examined (Zhang et al., 2024). These findings are important because they shift the discussion from "does digital HR increase productivity?" to "through what process does digital HR increase productivity?"

In addition to the innovation pathway, the 2024 literature shows another pathway: employee digital productivity/performance is influenced by digital leadership and the design of HR practices that engage employees. Studies on SMEs show that *digital leadership* drives employee digital performance indirectly through high-involvement HRM practices and employee dynamic capability (chain mediation mechanisms) (Wang et al., 2024). This emphasizes that productivity in the era of a technology-based economy is not only about process efficiency but also about employees' adaptability and ability to perform digital work.

At the level of daily operations, the literature also highlights the role of

collaboration platforms and e-HRM tools in communication, coordination, and performance feedback. The study on *E-HRM tools* underscores how digital platforms for real-time interaction and work management can accelerate information exchange, issue resolution, and team coordination, ultimately leading to increased productivity and an innovative environment (Stachová et al., 2024). Thus, digital HRM is also understood as a "work infrastructure" that affects the quality of work processes.

In recent developments, AI in HRM and its impact on employee performance are significant trends. A systematic review based on Scopus shows that AI and digital transformation are changing HR practices (e.g., *performance management, skill development*) while raising risk issues such as technostress, the need for ethical guidelines, and the balance of employee well-being as prerequisites for productivity not to "rise momentarily but fall sustainably" (Gupta et al., 2024). This is important for productivity research because the trade-off between efficiency and the psychological burden of digital work can influence productivity outcomes.

The 2025 literature enriches the knowledge map through a systematic review that maps the linkages between digital technology and HR practices across countries and themes. The review confirms the strong linkage between digital technology adoption and HR practices, but also warns of general methodological limitations (e.g., search scope and the need for additional empirical case studies) that necessitate caution in generalizing (Shiferaw & Birbirs, 2025). For your research, it is the basis for the argument that contextual empirical studies (specific sectors of the company's country) are still urgently needed to test the effect on productivity.

On the adoption side, the 2025 research also emphasizes the factors that motivate/inhibit the implementation of DHRM and its relation to performance. Empirical studies show that DHRM can help organizations access real-time data for more informed decision-making. However, its impact on performance is influenced by factors such as management support and engagement, as well as the mediating role of ongoing HR practices (Virmani et al., 2025). This implies that the relationship between HR digitalization → productivity is *contingent*: strong in organizations with good governance and implementation support, but can be weak when adoption is "system installed."

Finally, the literature on HR analytics shows that it contributes to agility and operational performance, which, in turn, leads to company performance. An empirical study (2025) reports that HR analytics is significantly related to organizational agility and operational performance, which, in turn, are related to firm performance. Despite the company's outcomes, the implications are relevant for employee productivity because agility and operational performance typically arise from more precise HR decisions (e.g., workforce planning, placement, training, and evaluation) (Sreenu & Vadithe, 2025).

Synthesis of research gaps (concise): (1) there is still a need for consistent modeling of mechanisms (mediation: digital transformation, behavioral innovation, engagement; moderation: management support/digital maturity), (2) productivity measurements often vary (output, quality, speed, digital performance), (3) risk dimensions (technostress/ethics/algorithmic justice) are often not integrated into productivity models. You can directly reduce this

foundation into a conceptual framework for the research "The Influence of HR Management Digitalization on Employee Productivity."

Research Methods

The research method used in this study is a qualitative, library-based approach. This approach was chosen because the research aims to analyze, interpret, and synthesize various concepts and empirical findings on the digitalization of human resource management and employee productivity, drawing on relevant scientific sources. Research data is not obtained through field surveys but through in-depth analysis of scientific literature, including reputable Scopus journals, academic books, proceedings, and research reports directly related to the research topic.

The data collection technique involved a systematic search of literature published over the last five years. The data collection process begins with the identification of key terms such as *digital HRM*, *e-HRM*, *digital transformation*, *employee productivity*, and *technology-based economy*. Furthermore, relevant articles were selected based on inclusion criteria such as the relevance of the theme, year of publication, journal quality, and suitability with previous research methodologies. The collected data is then classified into several main themes, including: the concept of HR digitalization, factors affecting productivity, and the relationship between HR technology and employee performance.

Data analysis was conducted using descriptive-interpretive methods. Each finding from the literature is critically analyzed to find patterns, conceptual relationships, and research *gaps*. The results of the analysis were then synthesized to build a comprehensive conceptual framework regarding the

influence of digitalization of HR management on employee productivity in the era of a technology-based economy. Through this approach, the research is expected to provide theoretical contributions in the form of a deeper understanding and practical contributions to organizations in designing effective HR digitalization strategies.

Results and Discussion

The results of the literature review indicate that digitalization in HR management is positively associated with employee productivity. Several empirical studies indicate that organizations that successfully implement digital HR practices record significant improvements in administrative process efficiency and work productivity. For example, digitizing processes such as HRIS systems, HR analytics, and collaborative applications speeds up administrative tasks, reduces manual workloads, and allows employees to focus more on high-value tasks, thereby increasing overall team productivity. This is in line with the findings of a study that reported significant changes in HR management practices due to digital transformation, which increased the organization's overall efficiency and productivity (e.g., the increased use of HR tech significantly increases employee productivity).

Empirical research in the organizational context also supports the positive relationship between human resource digitalization and employee performance. Quantitative studies in the technology services sector show that digital HR practices, including digital recruitment, technology-based training, and system-based performance management, significantly influence employee performance. The regression

analysis shows that the digital variables of HR each contribute significantly to employee performance, indicating that the adoption of technology across various HR functions not only improves process efficiency but also positively impacts individual and team work outcomes. The model can explain a large share of the variation in employee performance, strengthening the case for human resource digitalization as a driver of productivity in the era of a technology-based economy.

In addition to increasing productivity, several studies have also shown that digital HRM is not only related to process efficiency but also to the quality of employee work experience. For example, the use of HR analytics and digital tools improves decision-making accuracy in human resources, the quality of HR services to employees, and the overall work experience (employee experience). The efficiency and accuracy of data generated by HR technology are thought to be related to employee engagement and job satisfaction—two factors often identified as antecedents of high productivity. These findings show that the digitalization of HRM has the potential to strengthen organizational capabilities for managing the workforce holistically, not only as an administrative system but also as a means of increasing the overall value of employee work.

However, the study's results also indicate that there are challenges and contingency factors that affect the extent to which human resource digitalization impacts productivity. Factors such as organizational readiness, management support, and employee digital skills play an important role in determining the effectiveness of HR technology implementation. Recent literature suggests that without adequate strategic readiness and training, the application of

HR technology can face obstacles to achieving optimal productivity, indicating that the digitalization of HR management should be viewed as a complex, multi-factor transformation process rather than just the adoption of technology.

Overall, the study concluded that digitalization of HR management contributes positively to employee productivity by reducing administrative burdens, accelerating processes, and improving the quality of the employee work experience. However, the level of impact is influenced by the organization's readiness and employees' adaptability to new technologies, which further requires a comprehensive HRM strategy and appropriate implementation policy support.

Conclusions and suggestions

Based on the results of literature reviews and discussions conducted, it can be concluded that the digitalization of human resource management significantly increases employee productivity in the era of a technology-based economy. Digital transformation in HR functions, such as HR Information Systems (HRIS), e-recruitment, e-learning, HR analytics, and digital performance management systems, can improve the efficiency of work processes, accelerate decision-making, and reduce manual administrative burdens. This condition allows employees to focus more on strategic, high-value activities.

In addition, the digitization of HR management not only affects the technical aspects of work but also the behavioral and psychological aspects of employees. Implementing effective HR technology can increase employee *engagement*, innovative work behaviors, and employees' adaptability to change. These factors have proven to be

important mediators linking the digitization of human resources to work productivity. Thus, the success of HRM digitalization is not only determined by the availability of technology, but also by the readiness of human resources and organizational support.

However, the positive influence of digitalization of HR management on productivity does not occur automatically. Its effectiveness depends heavily on supporting factors, such as digital leadership, an adaptive organizational culture, employee digital competencies, and a planned implementation strategy. Without the support of these factors, human resource digitalization has the potential to be only a system change, without a real impact on productivity. Therefore, HRM digitalization should be understood as a comprehensive, sustainable organizational transformation process.

Suggestions

Based on the conclusions of the study, some suggestions that can be submitted are as follows:

1. For organizations. Companies are advised to develop an integrated HR management digitization strategy, not just focusing on technology procurement. Investment in the HR digital system needs to be accompanied by increasing employees' digital competencies, continuous training, and strengthening a technology-based work culture to maximize its impact on productivity.
2. For HR Management, HR Practitioners need to utilize HR data and analytics as the basis for strategic decision-making. In addition, digital-based HR policy design should be directed at supporting employee engagement, work innovation, and

skill development to increase employee productivity sustainably.

3. For the Government and Educational Institutions, it is necessary to support policies and programs for the development of digital competencies of the workforce through training, certification, and educational curricula that are relevant to the needs of the digital economy. This is important so that the readiness of national human resources aligns with the demands of technological transformation in the world of work.
4. For the next researcher, this research is based on a literature review, so it still has limitations in the empirical aspect. Further research is recommended to conduct field studies using quantitative or mixed-methods designs to directly test the causal relationship between the digitalization of HR management and employee productivity within a particular sector or industry. In addition, future research may add moderation variables such as digital leadership, organizational culture, or technology readiness to gain a more comprehensive understanding.

With the implementation of digitalization of human resource management that is planned and oriented towards human development, organizations are expected to be able to increase employee productivity sustainably and be more adaptive to the dynamics of the technology-based economy.

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