

RESEARCH OF MODERN PRACTICES AND TRENDS IN HUMAN RESOURCE MANAGEMENT IN THE AGE OF DIGITALIZATION

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Abstract

In today's interconnected world, traditional human resource management (HRM) is insufficient for business success. The rise of digitalization has impacted all organizations, making digital HRM essential for sustaining market position and performance. This article explores the transformation of HRM from traditional to digital forms, focusing on practices like digitized performance planning, employee onboarding/offboarding, AI-driven chatbots, and online learning platforms. The paper aims to assess the extent of digital HRM implementation across 109 companies. Statistical methods, including the Kruskal-Wallis and Wilcoxon tests, were used to evaluate nine digitized HRM trends. The findings provide insights into the current state of HRM digitalization, identifying key trends and offering recommendations for more effective digital transformation in organizational practice.

Key words: HRM practices, modern HRM, digitalization, transformation

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Introduction

Today's highly interconnected and digital world, traditional forms of human resource management alone are insufficient for business success. Organisations tend to adapt to different strategies with the intention of sustainability of market position and positive performance scores. Many of the following are coming to the fore trends in human resource management, which are a very topical and debated topic, especially at a time of digitalization that have affected the management of every organisation without regardless of geographical location as well as sector of operation. It suggests that digital human resource management has become an integral part of how businesses interact with their environments, affecting everything from customer acquisition to the brand visibility and beyond. The digital transformation of Human Resource Management (HRM) has reshaped how organizations manage their human capital. The shift from traditional HRM to digital HRM reflects broader changes in the business

environment driven by technological advancements, globalization, and the increasing importance of data-driven decision-making. The transformation of HRM is a vital component of ensuring the sustainability of competitive advantage in today's rapidly changing environment (Boudreau et al., 2011).

1 Transforming HRM - its evolution and key trends

Digital HRM refers to the integration of technology into HR processes, allowing for automation, data analytics, and more efficient employee management (Bondarouk, Brewster, 2016). It involves the use of digital platforms, tools, and applications to manage HR functions such as recruitment, onboarding, performance management, and employee engagement (Stone, Deadrick, 2015). Digital HRM offers the ability to streamline processes and make HR services more accessible, improving organizational performance and employee satisfaction (Marler, Parry, 2016). The evolution from traditional HRM to digital HRM has been driven by the need for agility and responsiveness in today's business environment. Traditional HRM, which focused on administrative tasks and compliance, is increasingly being replaced by strategic HRM that leverages technology to drive organizational goals (Cascio, Boudreau, 2011). This transformation allows HR departments to contribute to business strategy and align HR practices with organizational objectives (Bondarouk et al., 2017).

Several key trends have emerged in the digitalization of HRM, reflecting broader technological developments. One significant trend is the use of artificial intelligence (AI) and machine learning in recruitment and talent management. AI-driven tools allow for more efficient candidate screening, reducing bias and improving the quality of hires (Gélinas et al., 2022). Chatbots and AI applications also enhance employee onboarding and engagement by providing real-time support and information (Adam et al., 2021). Another trend is the digitization of performance management systems, which now incorporate real-time feedback and continuous performance tracking. This shift from traditional annual reviews to ongoing performance management fosters a culture of continuous improvement and accountability (Pulakos et al., 2015). Furthermore, digital learning platforms and virtual training environments are transforming employee development, enabling organizations to deliver personalized learning experiences at scale (Bondarouk et al., 2017). Digital HRM also facilitates remote work and the management of virtual teams, a trend accelerated by the COVID-19 pandemic. With the rise of remote and hybrid work models, HR departments are increasingly relying on digital tools to manage distributed workforces, promote collaboration, and ensure employee

well-being (Schwartz et al., 2019). Virtual team management requires new competencies in digital communication and collaboration, driving further investment in digital HR solutions (Cascio, 2000).

The impact of digital HRM is significant, with automation reducing the administrative burden on HR professionals and allowing them to focus on strategic initiatives. For example, digital tools have revolutionized employee onboarding, allowing for a more personalized and efficient onboarding process that improves employee retention and engagement (Sani et al., 2023). Document digitization and electronic workflows have also reduced the time and cost associated with HR transactions, enhancing efficiency and compliance (Sharma, 2024). The use of data analytics in HRM is another major transformation. HR analytics allows organizations to make evidence-based decisions by analyzing employee data to predict trends, assess risks, and optimize workforce planning (Bersin et al., 2016). Predictive analytics can help organizations identify potential turnover risks, assess employee performance, and tailor development programs to individual needs (Fitzenz, 2010).

2 Purpose, objectives and methods

The purpose of the paper is to identify practices and trends in business practice for the field of human resources management, which are characteristic for the era of digitalization in other words practices that have transformed from their traditional form into an online interface. Firstly, the degree of transformation from traditional human resource management to modern or digital human resource management in business practice will be assessed and secondly, the extent of application of selected digital human resource management practices and trends will be ascertained. Statistical analyses have been carried out in the framework of the paper in order to assess the use of digitisation trends by organisations. The methodology involves descriptive analysis, non-parametric statistical tests namely Kruskal-Wallis test and Wilcoxon test and appropriate post hoc tests for inferential analysis and verification of the two stated hypothesis. The Kruskal-Wallis test was used to compare the medians among organizations categorized by size (number of employees; H1) and sector type (H2). When statistically significant differences were found, post hoc tests were conducted to identify which specific groups exhibited these differences. Additionally, the Wilcoxon test was applied to compare two independent groups (public vs. private sector organizations). The results of these analyses not only confirmed the stated hypothesis but also provided deeper insights into how different organizational characteristics impact their approaches to digitization and adaptation to new technologies.

Specifically, 9 digitized HRM practices or trends are tested on a sample of 109 companies, such as Digitized performance planning, Employee onboarding and offboarding and document digitization, Chatbots or other forms of artificial intelligence used in business practice, Platforms for employee communication, Online learning environments, or Virtual teams for project and task resolution. Data collection was conducted through a questionnaire, which, in addition to identification data, assessed employees' opinions on various aspects of their organizations' behavior in relation to digitalization. A five-point Likert scale was used for measurement, where 5 indicated “*strongly agree*”, 4 “*agree*”, 3 “*cannot assess*”, 2 “*disagree*” and 1 “*strongly disagree*”. For each category, summary and average values were analyzed, along with standard deviations, medians, and ranges.

3 Research results - Trends in HRM

The research focused on examining and evaluating the effectiveness of innovations and trends in human resource management in the digital era. The main objective of the study is to identify and map how traditional HR practices that were previously common in face-to-face settings have been transformed into digital and online platforms. The analysis will focus on how these changes have impacted the effectiveness of organizations and the employee experience. The results of this study should contribute to a better understanding of how digitalisation is shaping modern HR management and what new strategies are needed to optimise these processes. The research sample included a significant proportion of large organisations, with those with more than 1,000 employees (29.4%) and those with between 50 and 249 employees (26.6%) being the most represented. The representation of public (52.3%) and private sector organisations (47.7%) is roughly balanced. In terms of focus, accommodation and food services (16.5%) and industry (15.6%) are the most frequent sectors. In terms of level of operation, the majority of organizations operate at the national level (33.9%) - representation at the regional (23.9%) and multinational (27.5%) levels is lower. This selection provides a sufficiently comprehensive basis for the analysis of organisations operating in different areas, thus increasing the generalisability of the results.

Then, after interpreting the sample description, we next focus on assessing the perceived importance of selected aspects of HRM digitization. The table 1 summarizes the eight statements that employees rated on a five-point Likert scale, with 5 being “*definitely yes*” and 1 being “*definitely no.*”

Tab. 1: Perceived importance of selected aspects of HRM digitalisation

Selected aspects of HRM	Mean value	Median	Min–Max
Copying new HRM market trends in the field of digitalization	3.1±1.7	4	1–5
Competitiveness in the HRM digitalisation market	3.3±1.3	3	1–5
Digitalization of HRM employee programs and policies	3.2±1.1	3	1–5
Systematic assessment and development of digital skills	3.2±1.3	3	1–5
Investing in tools and technologies to digitise HRM processes	3.3±1.3	3	1–5
Cooperation with IT companies to develop new HRM tools	3.1±1.3	3	1–5
Policies to manage cybersecurity in HRM digitalization	3.1±1.3	3	1–5
Identifying needs and preferences in fulfilling work tasks	3±1.2	3	1–5

Source: Self elaborating

Mean values range from 3.0 to 3.3, indicating a largely neutral or slightly positive employee attitude toward their organization's digitization efforts. Employees placed the greatest importance on the competitiveness of their organisations' digitalisation efforts, with the highest mean value of 3.3 and a standard deviation of 1.3. This shows that organisations consider it important to keep up with technological change and invest in digitalisation, which employees see as key to future success. Similarly, organisations' investment in tools and technologies to automate HR processes also scores high (3.3). Conversely, employees placed the least importance on identifying and analysing their needs in the performance of their work tasks, where the mean value was the lowest at 3.0. This result suggests that organizations may have reserves in a personalized approach to employees and their individual needs. The median value in most cases remained at 3, indicating that employee views do not differ significantly between organisations, but there is room for improvement. The overall results suggest that employees are taking notice of organisations' efforts to digitise, but also identify areas where organisations could better reflect their needs and adapt policies to the digital environment. A mean close to 3 shows that employees often do not have enough information or insight to adequately assess how their organization is replicating new market trends, competing in digital, adapting employee programs to the digital environment, and more. This phenomenon may be a result of the fact that strategic direction and digitisation initiatives are primarily decided by senior executives, who have a better overview of the organisation's overall goals and policies. If management staff were not included in the sample of respondents, this may explain why most employees expressed uncertainty in their responses.

We then proceeded to test for statistically significant associations between the selected HRM trends and the variables of organization size and sector of operation of the organizations. In the above context, we formulated the hypothesis.

H1: We assume a statistically significant association between at least one digital HRM trend and organization size.

To evaluate this hypothesis, 9 digital HRM trends were considered by assessing the degree of use of the above tools in the organizations surveyed. A five-point Likert scale was used for measurement, where 5 indicated “regularly”, 4 “frequently”, 3 “sometimes”, 2 “little” and 1 “not at all”. Table 2 presents the results of statistical tests (Kruskal-Wallis) for each digital trend depending on the size of the organisation. The χ^2 values are presented along with the corresponding degrees of freedom (df = 4) and p-values to indicate statistical significance of differences between size categories.

Tab. 2: Level of use of digitised HRM trends vs. size of the organization

HRM trends vs. size of the organization	χ^2 (df = 4)	P	sign.
Electronic attendance systém	7.67	0.104	
Digital employee file	10.42	0.083	
Payroll software	34.11	<0.001	***
SW solutions for employee evaluation	10.03	0.009	**
Digitised planning of performances, goals, tasks	7.05	0.133	
Employee onboarding and offboarding	3.21	0.522	
Chatbots or other forms of AI in HRM	8.77	0.067	
Online learning environments	0.99	0.911	
Virtual teams to tackle projects and tasks	7.32	0.119	

Source: Self elaborating

Inferential analysis revealed that of the nine digital trends tested, three showed statistically significant differences depending on the size of the organization. Specifically, payroll software usage (KW-test: $\chi^2 = 34.11$, df = 4, p-value < 0.001) - small organizations with 1-9 employees appear to have significantly lower rates of payroll software usage compared to larger organizations. This trend could be interpreted as a result of more limited financial resources or as a sign of less need for the more extensive payroll systems that are necessary to manage a larger number of employees. The lower prevalence of payroll software in small organisations may reflect the use of simpler, less expensive solutions that are sufficient for small-scale administrative needs. The trend in the use of software solutions to assess employee performance and productivity has also shown significant differences across the size of organisations. The results suggest that organisations with fewer than 50 employees use these tools significantly less than larger organisations (KW-test: $\chi^2 = 10.03$, df = 4, p-value = 0.009). This may be due to a lack of technical equipment or expertise needed to implement and

effectively use these sophisticated tools. Other digital trends tested, did not reach statistical significance at the thresholds set for this study (Table 2). Based on the results of the interference analysis, we accept hypothesis H1.

H2: We assume a statistically significant association between at least one digital HRM trend and the origin of the organization in terms of the organization's sector of operation.

Based on the Wilcoxon tests performed for each of the digital trends and the sector of operation of the organization, we found that most of the trends did not show statistically significant differences between the public and private sectors, with the exception of the trend in the use of electronic attendance systems (Wilcoxon: $z = 2.75$, $p\text{-value} = 0.003$). Table 3 shows the values together with the corresponding p-values indicating the statistical significance of the differences between the public and private sectors.

Tab. 3: Level of use of digitised HRM trends vs. sector

HRM trends vs. Sector	z	P	sign.
Electronic attendance systém	2.75	0.003	**
Digital employee file	0.15	0.44	
Payroll software	-0.52	0.697	
SW solutions for employee evaluation	-0.87	0.809	
Digitised planning of performances, goals, tasks	-0.89	0.812	
Employee onboarding and offboarding	-0.89	0.812	
Chatbots or other forms of AI in HRM	1.02	0.155	
Online learning environments	0.61	0.271	
Virtual teams to tackle projects and tasks	0.23	0.41	

Source: Self elaborating

Electronic Attendance Systems (EAS) are used more frequently in the public sector than in the private sector, which may be due to several factors. The public sector is subject to more stringent regulatory and legal standards that require accurate time recording and accountability, which is what EAS provide. Transparency with the public is key in the public sector, and these systems provide auditable records that assist in the fair compensation of employees and the efficient use of public resources. Further, public institutions often include large organisations with many employees in different locations, where EAS enable effective management and monitoring of working time. Also, the public sector has access to dedicated funds for upgrading infrastructure, including IT systems such as EAS, which encourages their wider adoption and

maintenance compared to the private sector where the need for cost-effectiveness and flexibility prevails. Other digital trends tested, did not reach statistical significance at the thresholds set for this study (Table V2). Based on the results of the Wilcoxon tests performed, we accept hypothesis H2.

Conclusion

This study explores the transformation of human resource management (HRM) practices in the digital era, focusing on the extent to which organizations have adopted digitized practices across varied sectors and organizational sizes. The analyses reveal important trends regarding both digital HRM practices and organizational characteristics influencing these trends. Firstly, the study's findings show a statistically significant association between organization size and the adoption of specific digital HRM trends. Large organizations exhibit higher rates of payroll software use and other advanced HRM tools, compared to smaller organizations. Additionally, tools for assessing employee performance show similar trends, where smaller organizations adopt these tools less frequently than larger ones. The reduced adoption among smaller entities can be attributed to barriers such as cost and lack of technical expertise, which impact the feasibility of implementing sophisticated HRM technologies. The acceptance of Hypothesis 1 underscores the reality that larger organizations, benefiting from greater resources, are more equipped to leverage advanced HRM technologies that facilitate efficiency and comprehensive employee management. In contrast, digital HRM trends do not significantly differ across most sectors, with a notable exception in the use of electronic attendance systems, where the public sector leads. In contrast, the private sector often emphasizes cost-effectiveness and operational flexibility, reducing the necessity for comprehensive attendance monitoring. The acceptance of Hypothesis 2 demonstrates that sector-based distinctions can play a role in digital HRM practices, although these differences are largely specific to compliance-driven tools rather than all HRM digitalization efforts. The study's results have several implications for organizations aiming to optimize HRM digitalization. For smaller organizations, digital HRM tools could be tailored to scale appropriately with limited budgets while still addressing core HR needs. Large organizations, already more digitally advanced, may benefit from enhancing employee-centric digital solutions that address personalized needs, thereby potentially improving employee satisfaction and engagement. In the public sector, the focus on compliance-driven systems like EAS aligns with transparency goals but could be balanced with more flexible tools that support employee engagement without compromising accountability.

In conclusion, the study underscores that the digitalization of HRM practices is both influenced by and contingent upon organizational size and sectoral demands. While larger organizations and public institutions are often better positioned to adopt advanced digital HR tools, there exists a need across sectors and sizes to focus on employee-specific digital solutions that foster both organizational efficiency and individual satisfaction. The findings contribute to a broader understanding of how digitalization is shaping modern HRM and point to areas for further research, including strategies for scalable HRM digital tools and the integration of employee-centric technologies in compliance-driven sectors. These insights serve as a valuable basis for organizations to tailor their digital transformation efforts in alignment with both their structural characteristics and the evolving expectations of their workforce.

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