DIGITALISATION OF HUMAN RESOURCE MANAGEMENT AS A FACTOR OF ENHANCING THE ECONOMIC RESILIENCE OF ENTERPRISES UNDER WARTIME CONDITIONS: ADAPTATION OF EUROPEAN PRACTICES

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Abstract. The *purpose* of the paper is to explore the transformation of human resource management (HRM) practices in the context of digitalisation, with a specific focus on European enterprises and the potential adaptation of these practices in Ukraine under wartime conditions. The study examines how digital tools, ranging from AI-powered recruitment platforms to integrated HR systems, have changed the operational landscape of HR departments and contributed to organizational resilience. *Methodology.* The research is based on a comparative analysis of secondary data, case studies, and recent literature on digital HRM tools implemented across European countries. A structured evaluation of selected platforms (e.g., SAP SuccessFactors, LinkedIn Talent Solutions, Oracle HCM) was conducted, focusing on their advantages, limitations, and applicability in crisis settings. *The results* highlight the strategic shift toward employee-centered digitalisation and reveal how large European enterprises have successfully leveraged digital HR tools to ensure continuity, engagement, and performance. These practices, however, face limitations in wartime Ukraine due to infrastructural constraints, workforce displacement, and legal misalignment. The paper identifies hybrid solutions combining global platforms with localized modules as the most promising approach for Ukrainian companies. *Practical implications.* The findings offer evidence-based recommendations for enterprises operating in volatile environments, particularly those in Ukraine, suggesting gradual digital adoption, integration with national systems, and employee-centered implementation strategies. Emphasis is placed on balancing technological innovation with psychological safety and adaptability of human capital. *Value / originality.* The paper contributes to the understanding of how digital HRM can be implemented in complex environments shaped by both digital transition and geopolitical disruption, offering original insight into adapting European practices to the Ukrainian context under martial law.

Keywords: human resource management, digital transformation, economic resilience, crisis management, human capital, hybrid HR systems, European integration, labor productivity, labor economy, organizational resilience, economic sustainability.

JEL Classification: M12, O33, J24, L21, F15

1. Introduction

In the era of rapid technological advancement, the digital transformation of human resource management has become a defining factor in ensuring organizational resilience, adaptability, and long-term success. Around the world enterprises are increasingly using digital tools to optimize recruitment, enhance employee engagement, streamline administrative processes, and support data-driven decision-making. The most evident example of this trend is in Europe, where a diverse landscape of economies, labor regulations, and digital infrastructure presents both challenges and opportunities for innovation in HR practices.

The COVID-19 pandemic acted as an unprecedented catalyst for digital transformation across all organizational functions, with human resource management (HRM) at the forefront of this shift. In the post-COVID landscape, HRM has played a crucial

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role not only in maintaining operational continuity but also in shaping the outcomes of digitalization initiatives. Organizations were compelled to adopt remote work technologies, digital collaboration tools, and automated HR platforms virtually overnight. This urgency highlighted the importance of agile and responsive HR practices that could adapt quickly to new technological environments.

2. Digital HRM Practices in Europe

In Europe, the experience of managing this transition has underscored the strategic importance of HRM in navigating digital transformation. Enterprises that had previously invested in digital infrastructure and fostered a culture of continuous learning were more successful in sustaining employee productivity and engagement during the crisis. HRM practices such as digital onboarding, virtual performance evaluations, and AI-assisted recruitment became not only viable but essential. Furthermore, the post-pandemic era emphasized the need for human-centered digitalization – where technology supports, rather than replaces, human interaction and well-being (Md Shahiduzzaman, 2025).

The European context is unique due to its complex regulatory environment, particularly with respect to data protection under the General Data Protection Regulation (GDPR) – as well as the high degree of integration between public and private sector systems in many countries. European enterprises are often at the forefront of adopting digital HR tools that comply with strict legal frameworks while responding to shifting workforce expectations in a multicultural and multilingual environment. This has resulted in a range of best practices and lessons that are increasingly relevant beyond the area.

At the same time, the ongoing war in Ukraine has introduced profound disruptions to organizational processes, particularly for regional enterprises struggling to maintain operations under conditions of uncertainty, displacement, infrastructure damage, and workforce instability. While digital tools offer a pathway to greater flexibility and continuity, Ukrainian companies often face critical barriers such as limited access to stable internet, loss of human capital, and the challenge of implementing new technologies amidst a national crisis.

This evolving role of HR has significant implications for Ukrainian enterprises, particularly those grappling with wartime disruption. The lessons learned in Europe during and after the pandemic provide a roadmap for integrating digital tools into HR systems in a way that enhances resilience, supports displaced or remote employees, and builds a foundation for recovery and growth. By aligning HRM practices with digital innovation, even under crisis conditions,

organizations can foster greater adaptability and long-term sustainability.

This article explores the European experience of digitalizing HR management, highlighting successful strategies and technologies adopted across the continent, and analyzes how these practices can inform and support Ukrainian enterprises seeking to build more resilient and modern personnel systems under the strain of war.

The advancements in using digital tools in business in Europe have not only streamlined hiring processes but have also contributed to a notable increase in recruitment activities across various sectors.

The Covid-19 pandemic was accompanied by periodic quarantine restrictions and social isolation, and the European market naturally underwent changes due to the need to adapt to new realities. Thus, the unemployment rate increased, as the transition to an online work format was not optimal for all companies.

As Eurostat statistics shows (Table 1), the unemployment rate remained relatively constant from September to December 2020, increasing by 7.5% annually in 2020 compared to 6.5% in 2019, in this case unemployed person is defined as someone aged 15-74 years without work during the reference week who is available to start work within the next two weeks and who has actively sought employment at some time during the last four weeks (Unemployment statistics, 2025).

The IT sector adapted most quickly to the conditions of uncertainty, in contrast with other fields. Performance varies significantly not only between sectors but also within them. The digital and healthcare industries have shown strong results. Key supporting sectors such as chemicals, construction, and food and beverages were expected to bounce back quickly, showing a V-shaped recovery. Although the automotive and textile sectors were hit initially, they have been gradually recovering since the first lockdowns. In contrast, industries that rely heavily on face-to-face interaction – like the cultural and creative fields and the aerospace sector – have suffered major setbacks and are likely to feel the effects of the crisis for a long time (Piwowar-Sulej, Blštáková, Ližbetinová & Zagoršek, 2023).

To support implementation of digital tools into organizational processes it was necessary to create new strategies or improve existing ones for enduring crises and enhancing both technical and social aspects of enterprise functioning. There are some companies which can be used as case studies in human resource management. For example, ABB Robotics which specializes in electrification and robotics was aimed at optimization of manufacturing processes using improved digital tools, such as AR-assisted remote maintenance tools, Virtual factory commissioning and digital twins, IoT systems

Change in the number of unemployed persons (compared to the previous month, in thousands), seasonally adjusted, January 2011 - February 2025
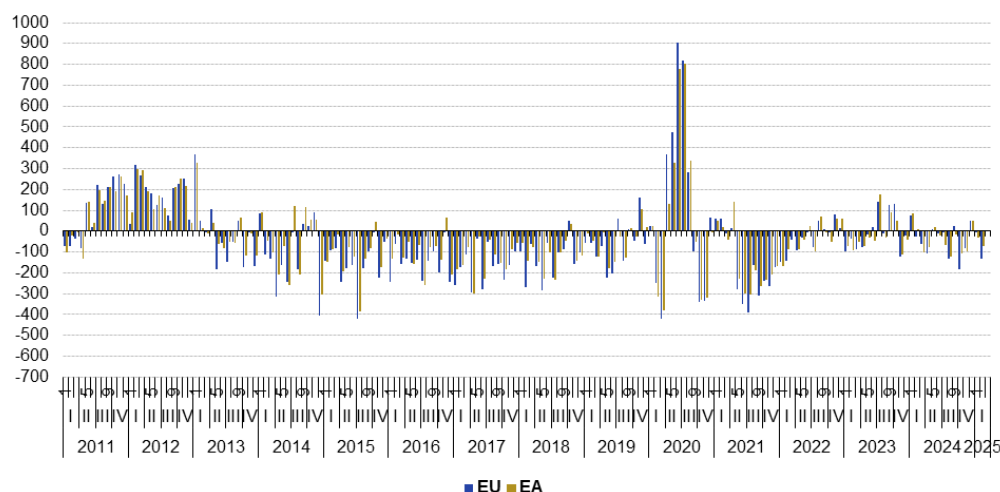
Source: Eurostat (online data code: une_rt_m)

eurostat

Figure. 1. Seasonally adjusted change in the number of unemployed persons in European Union and European Area

Source: (Unemployment statistics, 2025)

for machine diagnostics (Erro-Garcés, Aramendia-Muneta, 2023).

Considering human capital need, ABB mentions that the greater changes will come not in eliminating humans from distribution centers but rather replacing non-value-added movement with automation and robotics that can speed up processes and make them more efficient. Thus, they made such adjustments as enabling virtual onboarding and remote technical support roles, promoting cross-border virtual teams with digital collaboration tools, developing an internal digital skill-building academy, prioritizing employee flexibility and digital ergonomics (Bansal, Panchal, Jabeen, Mangla & Singh, 2023).

Another company, Nestlé invested in human-centered tech, showing how even non-tech industries can transform successfully – they introduced e-learning platforms for safety and digital literacy, rolled out global employee assistance programs online, promoted cross-functional remote collaboration, used HR analytics to monitor engagement and burnout.

Similarly, Bosch transitioned to digital training for technical staff, enabled remote work for non-production roles, strengthened internal communication platforms for workforce engagement, implemented flexible shift schedules and safe distancing with tech tracking.

In the meantime, digital tools implementation influenced the quality of company functioning, and existing platforms and companies which aim at optimization of business human resource management became even more popular.

In the process of research effective programs were identified, which was based on the opinion of different companies. According to that data, we grouped them into 5 types – Human Resource Management Systems for core functions, Digital recruitment platforms, Performance management tools, management of payroll and workforce timekeeping, Automation of time-consuming processes. Each of them has their advantages and disadvantages (Tables 1-5).

Human Resource Management Systems such as SAP SuccessFactors, Workday, and Oracle HCM serve as comprehensive platforms that centralize and streamline all core HR functions. These systems facilitate the management of employee data, support organizational planning, and integrate key HR processes including recruitment, onboarding, benefits administration, and performance evaluation. Their value lies in unifying diverse HR activities into a single, digital environment, enhancing decision-making, ensuring compliance, and improving workforce transparency across the organization (Table 1).

Digital recruitment platforms like LinkedIn Talent Solutions and SmartRecruiters have revolutionized the talent acquisition process by leveraging automation, AI, and data-driven analytics. These tools simplify job advertising, candidate sourcing, and application tracking while enhancing collaboration among hiring teams. Through intelligent filtering, scheduling tools, and branded job pages, these platforms improve the efficiency and effectiveness of recruitment efforts, helping organizations attract and secure top talent

Table 1

Human Resource Management Systems for core functions comparison

Tool	Advantages	Disadvantages
SAP SuccessFactors	strong analytics; scalable for complex global needs	High implementation cost; complex setup; limited customization; outdated UI
Workday	Intuitive UI; unified cloud platform; strong analytics and mobile access	High implementation costs; limited customization; fewer third-party integrations
Oracle HCM	User-friendly interface; flexible custom pricing	Performance issues with multiple users; frequent updates causing technical issues

Source: Compiled by the authors

in an increasingly competitive market (StepStone Group, 2023; White paper, 2023) (Table 2).

Tools such as Lattice and CultureAmp offer organizations a modern, continuous approach to performance management. Moving beyond annual reviews, these platforms emphasize ongoing feedback, goal tracking, and employee development through structured performance cycles and engagement surveys. They enable managers and employees to have more meaningful conversations around growth and productivity, fostering a performance-driven culture aligned with organizational objectives (Table 3).

Solutions like ADP and Personio play a critical role in the accurate and efficient management of payroll and workforce timekeeping. These platforms automate complex payroll processes, ensure tax compliance, and provide real-time visibility into attendance, absences, and labor costs. By reducing administrative burdens

and minimizing human error, such software supports organizations in maintaining operational continuity and financial accuracy, while also improving employee satisfaction with timely and transparent compensation systems (Table 4).

The integration of AI and automation in HR, through platforms like HireVue and Paradox, represents a transformative leap in human capital management. These tools automate time-consuming processes such as CV screening, candidate assessments, and routine employee queries through conversational chatbots. Additionally, they provide insights into employee sentiment and engagement using natural language processing and predictive analytics. By augmenting human judgment with machine intelligence, these technologies enhance efficiency, reduce bias, and enable more proactive HR strategies (Table 5).

Table 2

Digital recruitment platforms comparison

Tool	Advantages	Disadvantages
LinkedIn Talent Solutions	Extensive candidate database; effective for passive candidate sourcing; strong employer branding tools	implementation and customization can be expensive
SmartRecruiters	User-friendly interface; collaborative hiring features; customizable workflows	Integration challenges; reporting features can be complex; issues with filtering and language barriers

Source: Compiled by the authors

Table 3

Performance management tools comparison

Tool	Advantages	Disadvantages
Lattice	Continuous feedback system; customizable performance reviews; goal alignment features	Limited advanced analytics; may require additional tools for comprehensive insights
CultureAmp	Strong employee engagement surveys; science-backed methodologies; user-friendly interface	May lack depth in performance management features; can be expensive for smaller teams

Source: Compiled by the authors

Table 4

Management of payroll and workforce timekeeping comparison

Tool	Advantages	Disadvantages
ADP	Comprehensive payroll services; global compliance support; robust reporting tools	Can be expensive; user interface may feel outdated; customer support varies
Personio	All-in-one HR platform; intuitive interface; suitable for European markets	Limited global payroll capabilities; less suitable for very large enterprises

Source: Compiled by the authors

Table 5

Automation of time-consuming processes comparison

Tool	Advantages	Disadvantages
HireVue	AI-driven video interviewing; scalable for high-volume hiring; reduces time-to-hire	Concerns over AI bias; discontinued facial analysis features; potential accessibility issues
Paradox	Conversational AI for candidate engagement; automates repetitive tasks; enhances candidate experience	May lack depth in complex recruitment processes; reliance on AI may reduce human touch

Source: Compiled by the authors

The integration of AI-powered platforms such as HireVue and Paradox into human resource management marks a significant advancement in automating routine HR processes. These tools streamline tasks like resume screening, candidate evaluation, and employee communication through conversational interfaces, while also offering valuable analytics on engagement and sentiment. Despite concerns about AI bias and reduced human interaction, their ability to improve efficiency, accelerate hiring, and support data-driven decision-making makes them powerful assets in modern HR strategy.

3. Applicability to Ukrainian Enterprises

These practices were partially implemented in Ukraine, but they were mostly influenced by innovative small and medium enterprises, non-governmental organisations and companies with proactive leaders. In conclusion, there are several tools that are suitable for large enterprises in Europe, but have some restrictions and disadvantages due to challenges that arose after full-scale invasion, safety issues and national context. Thus, Oracle HCM is generally convenient for large companies but is not adapted to Ukrainian legislation. As for recruiting, LinkedIn Talent Solutions is not an effective tool for manual worker candidates and is intended to focus on white-collar workers. Performance management tool Lattice is quite flexible in terms of settings and effectiveness evaluation, but is not localized for Ukraine`s conditions. And other "leaders" of digital instruments highlighted in the article have one common problem - adaptation to Ukrainian context in terms of legislation, mechanics, operation features. What is up-to-date and convenient for companies around Europe is not applicable to our country.

For a large industrial enterprise of regional or national capacities in Ukraine, a hybrid solution would be suitable – a powerful global platform, localized modules, partnership with an IT company that ensures constant adaptation. One can choose a powerful global HR platform (e.g. Oracle HCM, SAP SuccessFactors) (European Parliament, 2021) and integrate it with Ukrainian accounting or HR systems via API or with the help of developers which is an advantage for the country as Ukraine stands as one of the most digitized countries. Outsource IT company can adapt the selected tool, develop additional modules (e.g., military service registration, adaptation to electronic reporting, etc.), and then keep supporting changes in legislation. Installation of open-source HR/ERP systems (e.g. Odoo HR, OrangeHRM), which allow full customization to Ukrainian requirements, hosting on own servers for security, cheaper implementation in the long term.

Important factors to consider today are regular updates as a key, in the face of frequent changes in legislation, it is needed to have a mechanism for rapid adaptation, and indeed, data security – taking into account military threats, it is desirable to have local or cloud hosting in Ukraine or the EU.

The transition to the active use of technologies at traditional enterprises has its drawbacks in conditions of martial law due to the emotional internal state of employees of institutions suffering from shelling, and the need to work more, which is dictated by the need to train in the use of digital applications, may not give the desired result, but on the contrary, lead to an increase in the share of loss of human resources. Not every employee of regional industrial enterprises is ready for changes in operational activities in conditions of uncertainty, especially since the prospect of increasing wages as a result of optimizing processes at the enterprise in the future does not look attractive at a time when it is possible to move to a safer region and work in a similar position, receiving the same salary without risk to life.

The way out of the situation is to focus on employee safety and, at the same time, gradually update production technologies to safer, more comfortable, employee-oriented ones, especially in front-line regions, it is important to direct your efforts to ensure the competitiveness of the enterprise from the employee's point of view. By gradually optimizing internal management processes using digital products related to task oversight and personnel selection, you can make the transformational transition less radical and more invisible to employees, which will not cause disagreements in the team.

4. Conclusion

In the current wartime conditions in Ukraine, large industrial enterprises are faced with a serious challenge of digital transformation, which must be carried out not only effectively, but also carefully. The use of digital HR tools and personnel management systems is undoubtedly a necessary step towards modernization, but it must take into account the realities of today.

The most important factors for successful integration are regular updates of solutions in accordance with frequent changes in legislation, the availability of mechanisms for rapid adaptation, as well as data security – in particular, preference should be given to local or cloud hosting in Ukraine or the EU. However, technological updates in martial law also have a human dimension. Employees, especially in regions under attack, are often under stress, and the additional burden associated with training in new digital tools may not only not improve efficiency, but also lead to employee attrition.

In this context, the key task is to find a balance: to ensure the safety and psychological comfort of employees, and also to gradually – without abrupt changes – update management technologies. The most effective strategy seems to be the phased automation of individual processes, in particular task control, time accounting, personnel selection – using hybrid systems that combine global capabilities and local adaptation.

Thus, the transformation should be not only technological, but also human-centric, with a focus on creating a safe, comfortable and stable working environment. It is this approach that will allow enterprises to preserve human resources potential and become competitive not only in the product market, but also in the fight for employees.

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