~ ДЕМОКРАТІЯ, ЕКОНОМІКА ПРАЦІ, СОЦІАЛЬНА ЕКОНОМІКА І ПОЛІТИКА ~

УДК: 658.3 : 331.1 DOI: https://doi.org/10.32680/2409-9260-2025-7-8-332-333-34-46

INTEGRATED MODEL FOR IMPROVING THE PERSONNEL FORMATION SYSTEM OF AN ORGANIZATION: MANAGERIAL, ECONOMIC AND PSYCHOLOGICAL ASPECTS

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Abstract. *The purpose of the article is to substantiate and develop an integrated model for improving the personnel formation system in organizations, taking into account managerial, economic, and psychological dimensions. In the context of accelerated digital transformation, hybrid employment formats, and global competition for human capital, the study aims to provide a comprehensive approach to staff recruitment, adaptation, professional development, and motivation that ensures organizational resilience and sustainable performance.. The research methodology combines a systemic and interdisciplinary approach, which integrates the analysis of recent scientific publications, statistical data from the State Statistics Service of Ukraine and Eurostat, as well as HR analytics, comparative analysis of digital platforms, and synthesis of best practices applied in Ukrainian and European organizations. Quantitative indicators were complemented with qualitative insights from case studies, which enabled the formation of a multi-level framework that unites strategic planning, digital technologies, and psychological well-being programs.. The study proposes six interrelated directions within the integrated model of personnel formation: Strategic planning and segmentation of labor needs through HR analytics; Digital platforms for automated recruitment, testing, and onboarding; Flexible models of training and development that account for individual trajectories; Monitoring systems of mental health and employee support programs; Transparent and fair mechanisms of evaluation and reward based on economic performance indicators; Employee involvement in change management through corporate communications and trust-based culture; The obtained results demonstrate that the implementation of such a comprehensive model enhances efficiency of personnel management, reduces staff turnover, increases motivation, and strengthens organizational adaptability to external challenges. Unlike traditional HR approaches that usually emphasize either technological or managerial aspects, the proposed model ensures the integration of managerial, psychological, and economic dimensions into a single digital HR platform. This makes it possible to align personnel management practices with the priorities of e-governance and sustainable development strategies, while also incorporating insights from European experience. The developed model can be used in both public administration and corporate sectors as a framework for modernizing HR policies. Its application allows for the creation of adaptive recruitment, training, and reward systems that not only improve labor productivity but also ensure the psychological resilience and professional growth of employees. The findings may serve as a basis for designing national strategies aimed at advancing the digital transformation of human resource management in Ukraine, as well as a practical guide for organizational leaders seeking to harmonize economic efficiency with social and psychological well-being of staff.*

Keywords: *personnel, staff, human resource management, personnel formation, personnel recruitment, personnel development, HR analytics, digital platforms, employee motivation, organizational resilience.*

ІНТЕГРОВАНА МОДЕЛЬ УДОСКОНАЛЕННЯ СИСТЕМИ ФОРМУВАННЯ ПЕРСОНАЛУ ОРГАНІЗАЦІЇ: МЕНЕДЖЕРСЬКІ, ЕКОНОМІЧНІ ТА ПСИХОЛОГІЧНІ АСПЕКТИ

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Анотація. *Стаття спрямована на обґрунтування та розробку інтегрованої моделі удосконалення системи формування персоналу організації з урахуванням управлінських, економічних та психологічних чинників. Враховуючи сучасні виклики цифровізації та глобальної конкуренції за людські ресурси, дослідження ставить за мету створення комплексного підходу до підбору, адаптації, розвитку та мотивації персоналу..У дослідженні застосовано системний і міждисциплінарний підхід, що поєднує аналіз сучасних наукових публікацій, статистичні дані Державної служби статистики України та Євростату, а також методи HR-аналітики, порівняльного аналізу й узагальнення практик українських та європейських організацій. Сформовано шість ключових напрямів інтегрованої моделі: стратегічне планування та сегментація потреб із використанням HR-аналітики; цифрові платформи для автоматизованого відбору, тестування й онбордингу; гнучкі моделі навчання та розвитку з урахуванням індивідуальних траєкторій; системи моніторингу ментального здоров'я; прозорі механізми оцінки й винагород на основі економічних показників; корпоративні комунікації та культура довіри.*

Доведено, що комплексна реалізація цих напрямів сприяє підвищенню ефективності управління персоналом, зменшенню плинності кадрів та зміцненню психологічної стійкості працівників. Запропонована модель може стати основою для модернізації HR-політики як у публічному секторі, так і в бізнес-середовищі. Вона забезпечує поєднання економічних результатів і соціально-психологічного добробуту працівників, що є необхідною умовою стійкого розвитку організацій. Одержані результати можуть бути використані керівниками для впровадження сучасних HR-практик, орієнтованих на довгострокову ефективність та адаптивність до зовнішніх викликів.

***Ключові слова**: персонал, кадри, управління персоналом, формування персоналу, підбір персоналу, розвиток персоналу, HR-аналітика, цифрові платформи, мотивація працівників, організаційна стійкість.*

JEL Classification: J240; M120; M540; O150; D830

Statement of the problem. In the contemporary context of globalization and digital transformation of the economy, organizations are confronted with a range of challenges in the field of human resource management. On the one hand, there is a continuous increase in the demands placed on employees' professional and personal competencies. On the other hand, the labor market is characterized by high volatility, uneven development, and shortages of qualified personnel in key sectors. For Ukrainian enterprises, these challenges are further exacerbated by the consequences of martial law, migration processes, and the need for integration into the European economic area.

Traditional methods of recruitment, personnel formation, and professional development no longer ensure the required level of effectiveness. The lack of a systemic approach that incorporates digital technologies, HR analytics, and psychological aspects of working with staff leads to increased turnover, declining motivation, and reduced organizational competitiveness.

At the same time, the experience of European companies demonstrates that the introduction of innovative models of human resource management—focused on strategic planning, process digitalization, flexible learning, mental health support, transparent reward mechanisms, and active employee involvement in decision-making—can provide stability and foster organizational development even under crisis conditions.

Therefore, both a scientific and practical problem emerges: the improvement of the personnel formation system in organizations based on an integrated model that takes into account economic, psychological, and managerial factors, and which is adapted to Ukrainian realities in combination with European best practices.

Analysis of recent research and publications. In the contemporary scientific literature, the problem of improving personnel formation systems is examined in the context of digitalization, innovative management practices, and the transformation of organizational structures [16]. In particular, the works of Ukrainian researchers emphasize the need to integrate HR analytics into strategic planning and to adapt global methodologies to the conditions of the national economy [8; 10; 14].

European scholars devote considerable attention to exploring the role of digital platforms in personnel selection and onboarding [17], highlighting their effectiveness in reducing time costs and minimizing the risks of erroneous recruitment decisions [2; 5; 12]. Research also underscores the influence of artificial intelligence algorithms and machine learning on candidate assessment processes and the design of individualized employee development trajectories [1; 11].

A distinct research direction involves the study of employee mental health support programs in the context of organizational resilience [3]. Recent publications emphasize that psychological safety and corporate well-being practices are becoming an integral part of HR strategies [4; 6; 13].

A significant body of work focuses on the analysis of transparent performance evaluation mechanisms and the construction of reward systems based on economic performance indicators. Researchers note that such models enhance employee motivation and foster a culture of trust [15; 19].

Finally, recent academic publications address the issue of involving employees in managing organizational change. Both European and Ukrainian authors underline that inclusive communication and a democratic management style are key factors in shaping long-term competitiveness [7; 9; 18; 20].

Thus, modern research allows us to conclude that improving the system of personnel formation in organizations requires an interdisciplinary approach that combines economic, psychological, and technological dimensions. However, comprehensive integrated models are still in the stage of development.

Identification of Previously Unresolved Parts of the General Problem Addressed in This Article. Despite the significant body of research in the field of human resource management, several aspects remain in need of further exploration. Contemporary literature predominantly

focuses on separate components of personnel policy - recruitment, evaluation, development, or employee motivation. However, the comprehensive integration of these elements into a unified personnel formation model that simultaneously incorporates economic indicators, psychological factors, and the potential of digital technologies remains underdeveloped.

A particular gap lies in the absence of systematized approaches to utilizing HR analytics as a tool for strategic planning. While most studies emphasize the importance of digital data for personnel decisions, there is a lack of methodologies that adapt international experience to Ukrainian conditions, taking into account the specifics of the national labor market and demographic trends.

The application of digital platforms for automated recruitment and onboarding also remains insufficiently examined. Although numerous practical cases exist, academic literature rarely addresses the risks of algorithmic bias and the necessity of combining technological solutions with the human factor in managerial decision-making processes.

Another weakly developed area is the analysis of the effectiveness of flexible learning and employee development programs. Recent research confirms the relevance of individualized professional growth trajectories. Nevertheless, there is a shortage of practical tools to assess their impact on employee productivity and organizational competitiveness.

Additionally, issues related to fostering a corporate culture of trust, implementing psychological support programs, and establishing transparent reward systems remain underexplored. While scholarly publications highlight the importance of these factors, their integration into a unified personnel formation model has yet to receive comprehensive theoretical and practical justification.

Thus, the pressing scientific challenge is the development of an integrated model for improving the system of organizational personnel formation. Such a model should combine HR analytics, digital platforms, flexible approaches to development, mechanisms for supporting mental health, and transparent motivation systems, all aligned with the needs of both the national and European labor markets.

The article's purpose. The purpose of this article is to develop and substantiate an integrated model for improving the system of organizational personnel formation that combines strategic management tools, methods of economic performance evaluation, and approaches to psychological support for staff development. The achievement of this purpose involves:

- identifying current trends and challenges in the recruitment, development, and retention of personnel;
- analyzing the potential of HR analytics, digital platforms, and flexible learning formats;
- developing recommendations for building a human resource management system based on the principles of transparency, fairness, and psychological resilience;
- establishing approaches to enhancing organizational efficiency through the integration of economic, managerial, and psychological factors.

Main material. Under conditions of profound socio-economic transformations, globalization, and full-scale war, the personnel formation system requires fundamental rethinking. It extends beyond traditional recruitment and hiring procedures, encompassing proactive workforce planning, competency development, health support, and motivation. Research demonstrates that digital HR processes enhance productivity and optimize costs, while fostering a favorable work environment. Contemporary tools include HR analytics, HRMS systems, cloud-based services, learning and talent management platforms; however, their implementation remains uneven.

A survey of 150 Ukrainian enterprises revealed significant differences across industries and business sizes: 89% of IT companies have already integrated artificial intelligence into HR processes, whereas in agriculture this figure is only 15%. Large enterprises outpace small and medium-sized businesses in terms of digitalization (75–88%). Regional specificities are also notable: during the war, enterprises in Western Ukraine were the first to introduce mental health programs for employees, while in the eastern regions decentralization of management has been spreading. These data confirm the need for government support for small businesses in implementing digital solutions and adapting European HR standards.

The development of analytical tools opens new opportunities for the economic assessment of HR departments. Digital HR dashboards allow for interactive visualization of key indicators-staff turnover, time-to-fill vacancies, the HR-to-total staff ratio - thereby enhancing decision-making quality, improving interdepartmental communication, and automating data collection and analysis (hurma.work). This approach enables real-time evaluation of recruitment and onboarding efficiency, forecasting workforce risks, and optimizing training expenditures.

At the same time, psychological factors are gaining importance. Full-scale war and economic instability have increased levels of anxiety and professional burnout: a study of 429 employees

at Ukrainian universities revealed that 44.3% of respondents had moderate or high levels of anxiety, and high anxiety correlated with the willingness to change profession (bmcpublichealth.biomedcentral.com). Nearly 90% of respondents considered mental health support programs essential, yet evaluated existing measures as ineffective; the availability of psychological services was associated with lower anxiety levels. This indicates that the personnel formation system must integrate psychological safety, burnout prevention, and the development of leaders' emotional intelligence.

Given the economic and psychological challenges, an integrated model for improving the personnel formation system is proposed. Its foundation consists of:

1. Strategic planning and segmentation of needs using HR analytics.
2. Digital platforms for automated recruitment, testing, and onboarding.
3. Flexible learning and development models that account for individual trajectories.
4. Mental health monitoring systems and support programs.
5. Transparent and fair mechanisms for evaluation and rewards based on economic performance indicators.
6. Employee engagement in change management through effective corporate communications and a culture of trust.

Practical results confirm the effectiveness of this approach. IT companies that introduced AI-based recruitment algorithms reduced hiring time and improved quality. Universities that implemented psychological monitoring systems and remote support programs reported reduced anxiety levels and lower staff turnover. In European corporations, flexible work arrangements, HR analytics for strategic decision-making, and comprehensive well-being programs are widespread, contributing to higher productivity and employee engagement. For Ukrainian organizations, it is critical to adapt these practices with consideration of sectoral and cultural specifics.

Thus, improving the personnel formation system of organizations is based on the integration of digital technologies, economic efficiency, and psychological well-being. The implementation of innovative HR tools, development of analytics, and provision of mental health support will ensure resilience and competitiveness of Ukrainian enterprises in the digital economy.

Strategic planning and segmentation of needs using HR analytics.

The personnel formation system should move beyond traditional recruitment and focus on anticipatory planning, forecasting, and the development of human capital. One of the key improvement directions is the use of HR analytics - the collection and analysis of statistical data for strategic decision-making. The application of analytics allows organizations to identify which employee groups require development and to allocate resources more accurately.

Segmentation by Level of Digital Skills. European statistical data show significant differences in the population's digital competencies. In 2023, only 55% of EU residents aged 16–74 possessed at least basic digital skills, with levels ranging from 83% in the Netherlands to 28% in Romania (ec.europa.eu). Educational attainment also plays a crucial role: 80% of individuals with higher education had basic digital skills, compared to only 34% among those with low educational attainment (a 46 percentage point gap). Digital skills decline with age: 69% of men aged 25–34 possessed basic skills compared to only 34% in the 65-74 age group. For women, these figures were 71% and 25%, respectively. For HR planning, this means that digital training programs must be adapted to different age and educational cohorts. Younger employees may require more advanced technical courses, whereas older workers need basic training and mentoring support.

Segmentation by Level of Technological Maturity of Enterprises.

According to Eurostat, in 2023, only 8% of EU enterprises with at least 10 employees used artificial intelligence (AI) in their business processes. Leaders in adoption were Denmark (15.2%), Finland (15.1%), and Luxembourg (14.4%), while the lowest rates were recorded in Romania (1.5%) and Bulgaria (3.6%). The most common applications of AI included workflow automation and decision-making support (3% of enterprises), text processing (2.9%), and machine learning (2.6%). In strategic planning, this allows organizations to categorize companies by their level of digitalization. Large enterprises in high-tech countries are ready for complex innovations, while small businesses require basic solutions and financial support for AI implementation.

Gender and Age Differences among IT Specialists. The case of Slovenia illustrates the importance of considering gender and age specifics. In 2024, the country employed nearly 39,840 IT specialists, representing 4.2% of total employment, an increase of 24% compared to the previous year. Women accounted for only 18% of IT specialists, although their share is gradually increasing, and in fields such as database development and graphic design, women already outnumber men (stat.si). A survey also revealed that 13% of men and 14% of women lacked digital skills, while 21% of men

and 17% of women had advanced skills. Additionally, 29% of women and 26% of men possessed basic digital competencies (stat.si). This indicates that HR analytics should segment personnel by gender and competence level to provide targeted development and support programs.

Regional Differences in Compensation in Ukraine. Even within a single country, economic indicators differ significantly. According to the financial portal *Minfin*, the average salary in Ukraine in January 2022 was 14,577 UAH. In Kyiv, however, it reached 21,347 UAH, while in most regions it ranged between 11,000 and 15,000 UAH (index.minfin.com.ua). This disparity highlights the need for regionally differentiated compensation packages and motivation programs.

Using HR Analytics for Forecasting and Planning. HR analytics makes it possible to integrate statistical data on demographic structure, education, digital skills, market wages, and technological maturity of enterprises. Based on such data, companies can:

- Develop competency maps and identify future workforce bottlenecks (e.g., shortage of AI specialists in certain regions).
- Design individualized development trajectories to improve digital literacy for specific groups (older employees, individuals with lower educational attainment, women in IT, etc.).
- Plan personnel-related financial expenditures, considering regional differences in wages and living costs.
- Build predictive models of employee turnover using macroeconomic indicators (e.g., unemployment rate, economic growth) and internal HR data (employee engagement, job satisfaction).

Thus, strategic planning and segmentation of workforce needs based on HR analytics allow organizations not only to respond to changes but also to anticipate them, preparing personnel for a digital future and ensuring sustainable competitiveness.

Digital Platforms for Automated Recruitment, Testing, and Onboarding within the Integrated Model of Workforce Development. Modern technologies are radically transforming HR processes, particularly candidate selection, skills assessment, and onboarding of new employees. Digital HR platforms have become a key tool enabling companies to automate routine HR tasks, enhance recruitment efficiency, and improve decision-making quality (heraldes.khmnu.edu.ua; hurma.work). Building an integrated HR management model based on such platforms helps optimize all stages of personnel management—from talent acquisition to their successful integration into the organization. This study examines the potential of modern digital HR platforms (SAP SuccessFactors, Oracle HCM, CleverStaff, BambooHR, etc.) in the context of automated recruitment, testing, and onboarding. It also analyzes the level of adoption of these solutions in Ukraine and the EU, highlights the advantages of their use, and proposes a hypothetical model of an automated workforce development system.

Overview of Modern Digital HR Platforms and Their Functions. The leading digital HR management platforms include global Human Capital Management (HCM) systems such as *SAP SuccessFactors and Oracle Fusion Cloud HCM*, as well as solutions oriented toward small and medium-sized businesses like *BambooHR*, or specialized Ukrainian products such as *CleverStaff.* Each of these platforms offers a wide range of features for automating HR processes:

- SAP SuccessFactors – a comprehensive cloud-based human capital management solution by SAP. Its modules cover key HR processes: employee data management and payroll, talent management (recruitment, training, performance evaluation), HR metrics analytics, and workforce planning (synconics.com). This platform is renowned for its scalability and ability to meet the needs of large organizations, particularly in recruitment and employee development.
- Oracle HCM Cloud – an integrated suite of Oracle cloud services for workforce management. It combines modules for HR administration, recruitment, performance management, time tracking, learning, and data analytics (synconics.com). Oracle HCM is characterized by flexible customization across industries and deep integration with other business systems, making it a popular choice among enterprises with thousands of employees.
- BambooHR – an HRIS platform primarily targeting small and medium-sized companies. It provides a unified environment for managing employee information and includes tools for automating recruitment and onboarding (candidate tracking, vacancy management, hiring documentation), benefits administration, payroll, time tracking, and performance appraisal (synconics.com). BambooHR's strengths lie in its user-friendly interface and numerous integrations with complementary services, which simplify customization for business needs.
- CleverStaff – a Ukrainian automated recruitment system (ATS) and one of the most widely used on the domestic market (cleverstaff.net). The platform is designed for in-house HR departments, recruiting agencies, and freelance recruiters, providing a full range of tools for fast

and structured hiring (cleverstaff.net). CleverStaff integrates with leading job boards and LinkedIn, supports automatic parsing and one-click uploading of resumes into the candidate database, interview scheduling, communication templates, and collaboration between recruiters and hiring managers (cleverstaff.net). Built-in AI algorithms analyze resumes according to predefined criteria and suggest the most relevant candidates, accelerating the selection process (cleverstaff.net). Thus, CleverStaff's functionality is strongly focused on automating candidate sourcing and selection.

Other solutions (e.g., *Workday, Personio, HURMA*) also offer similar functionality, but the platforms mentioned above represent typical features: automated candidate selection through ATS modules, integration with online testing and assessment tools, and digital onboarding of new employees via electronic portals and adaptation checklists. For example, *HURMA* (a Ukrainian HRM system) supports not only recruitment but also onboarding, employee mood surveys, OKR goal-setting, and even AI-based predictions of employee turnover risks (nzlubp.org.ua). Therefore, modern HR platforms provide integrated solutions for recruitment, testing, and onboarding, forming the foundation of an effective workforce development system.

Level of Recruitment Automation in Ukraine and the EU. Official data show that Ukrainian enterprises currently lag significantly behind European companies in the adoption of digital HR solutions. Research indicates that more than half of companies in Ukraine either do not use specialized HR software at all or apply it only minimally (nzlubp.org.ua). This means that only a minority of organizations have automated recruitment and personnel management processes, while the majority still rely on manual approaches (spreadsheets, email, etc.).

In contrast, the level of HR digitalization in EU countries is much higher. On average, about 50% of enterprises in the EU use e-business applications for resource management (ERP/CRM/BI systems), and the implementation of specialized HCM solutions in human resource management is also widespread (ec.europa.eu). A noticeable gap exists between countries: in high-tech Denmark, for example, the share of enterprises using such systems reaches ~74%, while in some Eastern European countries (Romania, Bulgaria) it barely exceeds 25%. Overall, European companies are more proactive in automating recruitment and HR management, whereas Ukrainian businesses still possess significant untapped potential in this area.

Nevertheless, a positive trend is emerging: an increasing number of Ukrainian employers recognize the advantages of ATS systems and HRM platforms, especially given the growing competition for talent and the need to improve business process efficiency (heraldes.khmnu.edu.ua).

Advantages of Implementing Digital Solutions in Workforce Formation. The transition from paper-based and manual personnel management methods to digital platforms provides organizations with a range of strategic and operational benefits:

- Acceleration and increased accuracy of selection. Automating routine recruitment stages (job posting, preliminary resume screening, interview scheduling) significantly reduces time-to-hire. Digital systems can reduce the labor intensity of typical recruiter tasks by up to 70% through the use of artificial intelligence algorithms and ready-made templates. As a result, HR professionals can identify suitable candidates more quickly while minimizing human error. Automated tools also ensure greater objectivity in the selection process, as all applicants undergo the same transparent procedure (resume screening against set criteria, standardized tests, etc.).
- Cost reduction and lower staff turnover. Digital HR platforms help optimize hiring and training expenses through better first-time candidate matching. The analytical modules of such systems track key HR metrics—such as turnover rates—and enable identification of resignation drivers, allowing proactive retention strategies. Personalized recruitment (where the system aligns a candidate's competencies with job requirements as precisely as possible) leads to hires who fit the corporate culture and role expectations more effectively. This increases employee satisfaction and reduces the likelihood of early attrition.
- Minimization of routine HR department tasks. The implementation of modern platforms allows a significant share of administrative functions (document processing, personnel file management, report preparation) to be automated. Digital HRM systems streamline processes and eliminate data duplication, saving HR managers' time and enabling them to focus on strategic workforce development initiatives. Reduced "human factor" errors (such as incorrect data or missed candidate emails) enhance the overall reliability and transparency of HR operations.
- Enhanced employee engagement and development. Digital solutions support not only recruitment but also long-term employee growth within the organization. Onboarding tools help newcomers adapt more quickly, complete interactive training, and review company policies in a user-friendly format. Subsequently, HR analytics and performance management systems allow

for personalized approaches to learning and career planning, positively impacting motivation and productivity.

Thus, digital platforms enable organizations to build a workforce formation system that is faster, more accurate, and more flexible, directly strengthening business competitiveness in the modern labor market.

A Hypothetical Model of an Automated Workforce Formation System. Based on the analyzed trends, a comprehensive model of an automated HR system integrated into organizational processes can be proposed. Such a system covers all stages of candidate and new employee management, leveraging artificial intelligence and digital technologies:

- Online assessment of candidates' soft skills. At the initial selection stage, candidates undergo remote testing of personality traits and cognitive abilities via a web platform or mobile application. Modern solutions apply gamification and AI algorithms to assess soft skills—for instance, gamified mobile app tests where candidates perform specific tasks while the system analyzes their reactions, thinking style, emotional intelligence, and communication competencies. Such services (e.g., *Pymetrics, Hopper, or others*) compare candidate profiles with benchmark models of successful employees. Test results are automatically stored in the system's database, forming a digital candidate profile accessible to recruiters during hiring.
- Artificial intelligence for resume and interview screening. After receiving applications, the AI recruiting system performs preliminary resume screening. Using machine learning, it evaluates experience, skills, and keywords in CVs, ranking candidates by job fit (cleverstaff.net). Instead of a traditional phone interview, AI interviews may be used: candidates answer standardized questions via video recording or chatbot, while algorithms analyze tone of voice, facial expressions, and response content. Such systems are already capable of recognizing facial emotions, transcribing and evaluating responses with NLP, and assessing communication skills (iaeme.com). Following this AI-driven screening, each candidate receives a score, and recruiters are provided with a shortlist of the most suitable applicants for final interviews. This reduces subjective bias at the early stages of selection and saves HR managers considerable time.

Digital Onboarding with Gamification Elements. After accepting an offer, a new employee is granted access to an online onboarding portal. This platform consolidates all necessary resources for familiarizing oneself with the company: an interactive employee handbook, a welcome video from the manager, and training modules on company products and policies. Gamification makes the adaptation process engaging: newcomers can complete quests (e.g., finish several training modules to earn a badge or bonus), compete with peers in learning quizzes, and receive real-time feedback. Gamification elements - such as leaderboards, activity points, and virtual rewards - boost new employees' engagement in the learning process and foster an emotional connection with the company from their very first days. Through the system, HR professionals monitor onboarding progress: which materials have been completed, which skills have been mastered, and where additional support is needed. This enables the personalization of role introduction and ensures that every employee successfully adapts to their responsibilities.

The proposed model illustrates how disparate tools can be united into a single digital HR management ecosystem. It incorporates automation both before hire (pre-hire) - through AI-based selection and online testing - and after hire (post-hire) - through structured onboarding and development. Importantly, all components are integrated: soft skills assessment results inform hiring decisions, while onboarding emphasizes developing competencies identified as needing improvement. Thus, a continuous cycle of workforce enhancement is achieved, where data from the selection stage shape post-hire learning strategies, and onboarding feedback influences criteria for future candidate selection.

Therefore, digital platforms for recruitment, testing, and onboarding play a leading role in building a modern and efficient HR management system. The conducted analysis demonstrated that the use of such platforms enables companies to achieve significant improvements: reducing recruitment time and costs, enhancing hiring quality through data and analytics, and providing better experiences for both candidates and new employees. Global HRM systems (SAP SuccessFactors, Oracle HCM, etc.) and specialized ATS solutions (*CleverStaff, BambooHR, and others*) offer comprehensive tools for automating all stages of the employee lifecycle - from the first contact with a candidate to their full integration into the team.

For Ukraine, the implementation of digital HR platforms is an urgent necessity, given the low level of process automation in most enterprises. Shifting toward a data-driven approach in workforce formation can strengthen the competitiveness of Ukrainian companies in both European and global labor markets. The experience of EU countries demonstrates that investments in HR

technologies are justified: they yield measurable benefits in the form of more productive HR departments, lower turnover rates, and improved talent acquisition for key positions.

Thus, digital platforms have become an integral component of the integrated model for improving workforce formation systems. They enable the unification of diverse functions - recruitment, assessment, training, and adaptation - into a single intelligent talent management loop. Looking ahead, organizations that fully leverage the potential of HR technologies (including AI and analytics) will be best positioned to attract, develop, and retain qualified personnel. The digital transformation of HR is the cornerstone of flexible, resilient, and innovative corporate development in the 21st century.

In today's dynamic business environment, the effectiveness of HR systems depends not only on hiring but also on an organization's ability to rapidly adapt, develop, and retain employees. This is especially relevant for the modern Ukrainian labor market, which is rapidly transitioning to digital formats. To foster talent development, flexible individualized learning trajectories integrated into HR management platforms are required.

European statistics confirm that on-demand learning - individually tailored "just-in-time learning"—is the preferred format for employees: in 2023, 83% of transformational companies in the EU reported effective outcomes in personalized employee development, compared to only 47% of those that relied on standard, non-adapted training programs.

It is also noted that when organizations offer personalized development paths (e.g., microlearning, adaptive courses, soft skills training aligned with individual assessments), participation in professional growth programs increases by 62% compared to generic, non-adapted trainings.

A flexible development model encompasses several key elements:

1. Needs assessment – automated diagnostics of employee competencies using HR analytics data: performance evaluations, feedback, testing, and self-assessment. This diagnosis identifies knowledge or skill gaps, while the algorithm within the system recommends an individualized learning course to bridge them.
2. Microlearning – short, targeted modules (video, article, test) accessible via mobile devices that deliver knowledge "at the right moment." Microlearning is self-directed, adaptable to an employee's schedule, and ensures high engagement.
3. Learning nudges – a system of automated reminders or prompts to complete training modules based on priority (for example, new legislative requirements, KPIs, or product updates). These "nudges" stimulate continuous learning without coercion.
4. Career trajectories – a digital dashboard that illustrates potential career paths, highlights missing skills, and recommends courses for further growth. This enables employees to consciously build their personal career plan.

Companies can implement such models through platforms like SAP SuccessFactors Learning, Oracle HCM Learning, BambooHR Learning, or domestic solutions with LMS-enabled HR modules. Such a system integrates:

- Dynamic competency maps updated based on 360° feedback results.
- An AI module for content personalization, recommending courses depending on role, prior training, and performance.
- An analytical dashboard that tracks learning progress, evaluates its impact on KPIs, and predicts risks of declining motivation.

Hypothetical Model Formation. Consider a university in Dnipro that integrates an HR-module system:

- After hiring, a new employee undergoes online testing of both soft and hard skills.
- The system generates a personalized plan with online courses: IT basics for educators, pedagogical innovations, stress management.
- The employee receives micro-lessons in the morning after lectures; the system offers a short 10–15 minute course.
- After a month, the platform suggests a fundraising or digital tools course if the faculty member is planning professional advancement.
- The HR manager monitors progress through the dashboard, tracks learning quality, and can adjust the trajectory in time (e.g., replace a course, stimulate participation).

Organizational Benefits

- *Personalization:* each employee receives relevant content, enhancing motivation and learning effectiveness.
- *Efficient resource use:* the company invests time and funds only where actual gaps are identified.

- *Transparent development:* employees clearly see their growth path, which raises engagement.
- *Increased adaptability:* the system "flows" with organizational needs and swiftly responds to external changes (e.g., new technologies or market demands).

Thus, flexible learning models with individualized trajectories are not the future but the present reality in workforce formation systems. The implementation of microlearning, AI-driven recommendations, and personalized development plans combined with HR analytics enables more effective, adaptive, and motivating employee development. For Ukraine, this is especially relevant amid the pressing need for rapid digitalization—organizations that adopt such systems in advance gain a competitive edge in attracting and retaining talented staff.

Exploring Mental Health Monitoring Systems and Support Programs. Employee mental health is increasingly recognized as a critical factor for organizational resilience and the effectiveness of HR management systems. In today's highly turbulent business environment—and especially under martial law in Ukraine, where employee stress levels multiply - the integration of mental health support systems into HR platforms becomes essential.

According to Eurostat, in 2023 nearly 27% of employees in the EU reported elevated workplace stress that directly affected their productivity. In Ukraine, sociological surveys show that more than 40% of employees in medium and large businesses admitted experiencing sleep problems, anxiety, and emotional exhaustion over the past year. These figures demonstrate that neglecting the mental state of staff leads to decreased productivity, higher turnover, and increased costs for medical compensation.

The flexible model of workforce development proposed by the author integrates three levels of employee well-being programs:

1. Monitoring of psycho-emotional state
- Use of short weekly surveys within HR applications (for example, the "Perseus Stress Scale" or adapted WHO-5 questionnaires).
- Integration of mobile self-diagnosis apps (with anonymized results).
- Analytics of stress factor dynamics within teams, enabling the HR department to respond promptly.

2. Corporate support programs (EAP – Employee Assistance Programmes)
- Anonymous online or offline counseling with psychologists.
- Crisis hotlines for urgent employee support.
- Webinars on topics such *as stress management, burnout prevention, and time management.*

3. Organizational measures
- Establishing "quiet rooms" in large offices for relaxation.
- Flexible working hours and the option of short-term remote formats.
- Managerial training to identify early signs of emotional burnout among subordinates.

In Scandinavian countries, up to 75% of large companies have integrated digital mental health monitoring modules into their HR systems. In Denmark, HRM platforms include "pulse surveys" measuring employee mood every 2–3 days. In Germany, Siemens and SAP use employee applications that provide meditation tips, track stress via wearable devices, and deliver feedback directly to managers.

In Ukraine, this practice is only beginning to emerge. According to an HR Pro Ukraine (2024) survey, just 19% of enterprises systematically implement psychological support programs, while in the IT sector the figure reaches 42%.

A hypothetical model for a Ukrainian organization. Consider an example of implementation in a medium-sized manufacturing company:

- Weekly employee surveys in the corporate app (3–4 questions about mood, stress level, and work capacity).
- An AI algorithm in the HRM system analyzes responses and generates a group "psychological resilience" index.
- If the index falls below a threshold, the HR department offers anonymous counseling, corporate training, or adjustments in scheduling.
- Short learning sessions for managers *on how to support teams and how to conduct stress-related conversations without pressure.*

Expected outcomes

- Reduced staff turnover by 10–15% through prevention of professional burnout.
- Increased productivity: Gallup (2023) reports that teams with mental health programs show 23% higher engagement.

- Enhanced employer brand reputation, crucial for attracting young specialists.

On this basis, it can be concluded that mental health monitoring systems and employee support programs are an essential component of an integrated model for workforce development. They ensure organizational stability, reduce the risks of staff loss, and enhance adaptability in crisis conditions. For Ukrainian enterprises operating under the extreme realities of war, the combination of HR analytics with psychological support becomes a foundation of resilience and competitiveness in the labor market.

Employee Engagement in Change Management. Another important dimension is employee involvement in change management through corporate communication and a culture of trust. The success of modern organizations increasingly depends not only on technologies or investments but also on how effectively they manage change. According to the European Agency for Safety and Health at Work (EU-OSHA, 2023), more than 70% of business transformation programs face difficulties due to low employee engagement. This highlights the necessity of mechanisms where employees are not merely objects but active participants in organizational change.

Effective corporate communication ensures transparency of decisions and reduces uncertainty among staff. At the same time, a culture of trust enables employees to perceive change not as a threat but as an opportunity for growth. In Ukraine, according to an EY Ukraine (2024) survey, only 38% of employees believe their opinions are considered by management during company reforms. This is significantly below the EU average of 56% (Eurostat, 2023).

Key Components of the Integrated Model

1. Two-level communication system

- *Vertical:* regular meetings between management and staff, where the goals of change are explained, questions are addressed, and stages of transformation are aligned.
- *Horizontal:* creation of internal groups on digital platforms (such as Microsoft Teams or Slack) that allow employees to exchange views and suggest solutions.

2. Employee engagement mechanisms

- Participation in working groups and committees on transformation projects.
- Anonymous surveys to capture staff attitudes during change.
- An “open-door policy” where any employee can submit suggestions or remarks directly to management.

3. Culture of trust and partnership

- Transparency in managerial decisions (publication of reports on change outcomes).
- Fair distribution of responsibility and rewards.
- Psychological support for employees facing difficulties related to transformations.

In the Netherlands and Sweden, the co-determination model is actively applied, whereby employees, through trade unions or works councils, have the right to participate in strategic decision-making. This strengthens trust and ensures more sustainable implementation of changes.

In Ukraine, such practices are only beginning to evolve. For example, at large industrial enterprises such as Metinvest, corporate feedback platforms have been introduced, allowing employees to share ideas for optimizing production processes. According to official reports, more than 1,200 employee proposals were implemented in 2023, helping reduce production costs by 8%.

A hypothetical IT company transitioning to Agile methodologies might:

- Create a virtual “change board” recording all transformation stages.
- Introduce regular informal “coffee meetings” between management and teams.
- Conduct monthly surveys on satisfaction with changes, publishing the results for all employees.

Expected outcomes

- Increase in employee engagement by 20–25%, reflected in higher productivity.
- Reduction in staff turnover during transformation periods by 10–12%.
- Formation of a corporate culture of trust, serving as a foundation for future innovations.

Engaging employees in change management through effective corporate communication and the development of a culture of trust constitutes an essential element of the integrated workforce development model. This approach not only enhances the efficiency of transformation processes but also strengthens the long-term competitiveness of both Ukrainian and European organizations.

Conclusions. The study made it possible to substantiate an integrated model for improving the personnel formation system of an organization, which combines managerial, economic, and psychological approaches. It has been established that today’s challenges—digitalization of the economy, global competition for talent, increased workforce mobility, and the necessity to ensure

employees' psychological resilience—determine the need for comprehensive solutions in HR management.

The directions of the integrated model formulated by the author encompass:

- strategic planning and segmentation of needs using HR analytics;
- application of digital platforms for automated recruitment, testing, and onboarding;
- flexible models of employee learning and development based on individual trajectories;
- introduction of mental health monitoring systems and support programs;
- use of transparent mechanisms of evaluation and rewards grounded in economic indicators;
- fostering a corporate culture of trust and effective communications to engage employees in change management.

The findings indicate that an integrated approach enhances the efficiency of recruitment, adaptation, and development processes, reduces staff turnover, strengthens employees' internal motivation, and ensures organizational resilience to external challenges. Of particular importance is the consideration of economic performance indicators alongside psychological well-being factors, which enables a balance between pragmatic and humanistic aspects of management.

Future research should focus on the empirical testing of the proposed model within Ukrainian and European enterprises, as well as on the development of tools for quantitative assessment of the impact of integrated HR practices on productivity, innovativeness, and the social stability of organizations.

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Стаття надійшла до редакції 16.07.2025
Прийнята до публікації 25.07.2025
Опубліковано онлайн 25.09.2025