

HR AUTOMATION AS A DRIVER OF STABLE EMPLOYMENT FOR MIGRANTS: THE EXPERIENCE OF EASTERN EUROPE

*Viacheslav Yuriiovych Gryn*¹

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Abstract. The article examines the role of HR process automation as a key factor in ensuring sustainable, effective and inclusive employment of migrant workers in Eastern European countries. The focus is on the use of digital tools at different stages of work with personnel: from recruiting and adaptation to training, development, monitoring of legal status and social integration.

The examples of Poland, the Czech Republic, Romania are analyzed, where automated systems such as ATS (Applicant Tracking Systems), chatbots, distance learning platforms (LMS), augmented and virtual reality tools (AR/VR), as well as document verification systems based on artificial intelligence are actively implemented to support. Particular attention is paid to European initiatives aimed at the digital transformation of HR functions taking into account human rights and the needs of vulnerable categories of migrants.

It is shown that automation helps to accelerate access to the labor market, reduce discrimination, improve language and professional adaptation, and ensure legal transparency of processes. At the same time, the risks associated with algorithmic biases, loss of a personalized approach, and insufficient legal mechanisms for monitoring the use of AI are outlined.

The need to implement hybrid models that combine digital innovations with human support, moral standards, and social dialogue is substantiated. It is generalized that the strategic use of HR automation can not only improve the efficiency of personnel management, but also contribute to building an inclusive and cohesive society in the context of growing migration.

Keywords: HR automation, labor migration, digital technologies, artificial intelligence, recruiting, adaptation, inclusiveness, Eastern Europe.

¹ Co-Founder, Visionary of the Company "Profi Hand Spzoo",
Kyiv National University of Construction and Architecture,
Kyiv, Ukraine.
<https://orcid.org/0009-0002-9016-0659>

Introduction

HR automation as a component of the digital transformation of socio-economic processes is gaining particular importance in the context of global migration mobility and dynamic changes in the labor market. The issue of sustainable employment of migrants in Eastern Europe is becoming more urgent due to demographic decline, shortage of skilled labor, and geopolitical instability, which leads to an increase in internal and external migration. In these circumstances, digital HR tools, including automated systems for recruiting, adapting, training, and monitoring employees, are not only technological innovations but also important mechanisms for integrating vulnerable populations into the formal labor market.

As noted by N. M. Petrukha and Y. M. Denysenko, "the creation of adaptive digital mechanisms for inclusion in economic activity" is a key prerequisite for the economic reintegration of socially vulnerable groups, including veterans [6, p. 455].

HR automation allows not only to increase the efficiency of HR processes but also to adapt them to the multilingual, multicultural context of the modern labor market. Authors agree with I. Kondratiuk's opinion that artificial intelligence algorithms, chatbots, language support systems, and remote adaptation platforms make it possible to create transparent, non-discriminatory, and scalable models of recruitment and integration of migrants [5]. In Eastern European countries, which are both donors and recipients of labor migration, there is an urgent need for an effective combination of digital solutions and a humanitarian approach to human resources management, which makes an interdisciplinary analysis of this phenomenon relevant.

In particular, M. Tripak, S. Petrukha, N. Petrukha and D. Konovalenko emphasize that "the introduction of automated personnel management systems" takes into account the specifics of employment of socially vulnerable categories and contributes to the development of an inclusive economy [8, p. 47]. They also emphasize that "veteran business as a form of economic adaptation needs modern digital solutions that can ensure the flexibility and efficiency of personnel processes" [8, p. 51].

In turn, the study by F. Natale, S. Grubanov Boskovic, R. Sebastian, F. Biagi indicates that digitalization allows for the creation of new mechanisms to protect the rights of migrant workers and improves the matching of their skills to market needs [17]. Similarly, N. Lindström, in her work on artificial intelligence and the integration of migrants into labor markets, emphasizes the need for AI-oriented policies that can reduce discrimination and increase employment inclusiveness [15].

Also, according to the study *Technological Advances and Organizational Discrimination: The Dual Impact of Industry 5.0 on Migrant Workers* [18], the introduction of Industry 5.0 opens up new opportunities for personalizing HR processes, while increasing the risks of automated bias. Despite the existence of studies on the digitalization of HR processes or migration issues separately, an integrative study of the role of HR automation as a driver of sustainable employment of migrants remains underdeveloped. It is especially relevant to analyze the practices of Eastern Europe as a space with complex socio-economic dynamics, high levels of regional inequality, and dependence on labor resources of external origin.

Aim. The aim of the article is to systematically analyze the potential and challenges of HR automation as a tool for ensuring sustainable employment of migrants in Eastern Europe, to identify practical mechanisms for the digital integration of migrant workers into the HR processes of enterprises, and to assess the impact of digital HR technologies on the inclusiveness, efficiency and transparency of the labor market in the region.

Results

In the current conditions of digital transformation of the labor market, automation of HR processes plays a key role in creating an inclusive and sustainable environment for the employment of migrant workers.

According to I. Kondratiuk, HR automation has become "a driver of modern enterprise development, in particular, due to the reduction of manual labor in HR services and the increase in the efficiency of management decision-making" [5]. These advantages are especially relevant in the context of processing large arrays of resumes, including the migrant segment, where there are often language or format differences.

According to Hurma's blog, ATS systems allow "automatically structuring candidate profiles, searching for keywords, and ranking candidates," which reduces the workload of recruiters and speeds up migrants' access to relevant jobs [1].

G. V. Bey and G. V. Sereda emphasize that "digitalization tools contribute to the transformation of traditional HR management, providing opportunities for the implementation of the principles of flexibility, adaptability and inclusiveness" [2, p. 95]. In this context, it is important not only to automate the selection process, but also to provide further support to the employee through LMS platforms, chatbots, and onboarding systems, which is especially valuable for employees who come from other cultural backgrounds.

Zh. Xuilin draws attention to the fact that innovative HR technologies should "form an environment for the professional growth of future HR professionals who are able to work in conditions of intercultural diversity" [7, p. 59], which is a critical factor for supporting migrants in the long term.

A review of the 20 most common HR automation tools presented in the HR-Tool-Box project shows the growing role of integrated digital services in identifying, testing, and adapting employees, including those from vulnerable categories [9].

Finally, according to the International Journal for Multidisciplinary Research, modern AI tools in migrant labor management allow "creating a fairer and more efficient recruitment environment based on objective metrics rather than stereotypes or subjective assessments" [10].

It should be noted that recent years have contributed to the formation of a new model of HR automation as an important driver of sustainable employment of migrant workers in Eastern Europe. The main focus is on automating recruitment, selection, adaptation and integration of employees through innovative HR systems.

Automated resume screening reduces time and human error, but often misses migrant candidates due to narrow filters: unrecognized foreign diplomas, special visa statuses, and language barriers [18]. At the same time, artificial intelligence (AI) can speed up onboarding through automatic data entry, language chatbots, personalized courses, and communication between the employee and HR.

In Eastern European countries, such as Poland, the Czech Republic, and Romania, the practice of automating HR tools is actively developing as a response to the challenges posed by the demographic decline, labor shortages, and the need for effective integration of migrant workers. In Poland, chatbots are being actively introduced to conduct preliminary video interviews, which not only reduces the workload of recruiters but also provides basic language support to candidates who do not speak Polish at a high level. Similar tools are integrated with online soft and hard skills tests, which allows for objective profiling of candidates without bias [20].

In the Czech Republic, machine learning (ML) algorithms are increasingly being used to analyze resumes, automatically parsing documents, and predicting the success of a candidate's adaptation to a particular position. For example, large recruitment agencies and

IT recruitment platforms such as Datacruit integrate AI tools that not only find relevant vacancies but also personalize career advice for migrants. This allows taking into account both professional skills and cultural peculiarities or work experience in other countries, which is especially important for people who do not have their diplomas or certificates formally recognized in the host country.

In Romania, where the number of workers from Moldova, Ukraine, and Asia is actively growing, automated HR document management and compliance systems help employers maintain the legal status of foreign workers without the need for constant legal supervision [11]. Such systems automatically send reminders about the expiration of work permits, visas, medical certificates, etc., which minimizes risks for both the employee and the employer.

Pan-European initiatives are also illustrative. For example, the German Jobturbo program, aimed at integrating refugees from Ukraine and the Middle East, uses intelligent digital platforms with integrated job databases, online language and professional adaptation courses, and interfaces for automatically analyzing a candidate's compatibility with market demands. The Lithuanian Refugee Fellowship initiative provides not only access to training and internships, but also uses CRM platforms to support each migrant throughout the entire employment process, from application to adaptation in the workplace [14].

The table below illustrates the practical aspects of automation and its direct impact (Table 1).

Table 1

HR automation tools and their pragmatic function in the context of supporting migrant workers

Pragmatic function	HR automation tool	Benefits for migrants
Screening selection /	ATS-systems (Applicant Tracking Systems), artificial intelligence algorithms (AI-recruiting)	Automatic ranking of candidates based on keywords speeds up the selection process. Reducing bias related to the human factor. At the same time, the algorithms should be calibrated to the diversity of education and experience typical of migrants to avoid automatic elimination due to unadapted resumes.
Conducting an interview	Audio and video chatbots, voice assistants built into pre-assessment platforms	Provides basic interaction in the candidate's native or preferred language, minimizing the stress barrier from the first contact with a recruiter. Automatic recognition of speech patterns allows to record the basic level of language proficiency. It creates equal conditions for the first stage of the assessment.
Assessment of skills	Resume analytics tools, automated tests for soft and hard skills	Identification of hidden or non-obvious skills, especially in cases where formal education or experience does not fully reflect actual competencies. This helps migrants whose experience or diplomas are not immediately recognized but who have relevant skills.

Adaptation and onboarding	LMS platforms, automated welcome portals, microlearning courses, VR/AR simulations	Accelerating the process of inclusion in the work environment. For example, a migrant can familiarize himself or herself with the company's internal policies and basic cultural norms before the first day of work. Interactive trainings allow to learn at one's own pace, without the stress of a new environment.
Language support	Online translators, multilingual LMS, integrated subtitles in training videos	Significantly reduces the barrier to entry for those who do not speak the language of the country at a sufficient level. The possibility of taking an introductory course or instructions in the native language allows to quickly adapt and understand the processes. Automatic translations of correspondence, instructions, or documentation are critical during the first integration phase.
Feedback and development	HR bots, personalized assessment platforms, automatic career advice	After employment, the system provides recommendations on internal opportunities, internships, and training. This contributes not only to employee retention, but also creates prospects for career growth for migrants. Feedback through a bot is less confrontational for newcomers.
Legal support / compliance	Automated visa status checks, digital document management, integration with government systems	The systems automatically track the validity of documents, the legal status of the employee, and the need to update permits. This is especially important for migrants who may not be aware of local legal requirements, as well as for employers to avoid risks.

Source: compiled by the author based on [19; 20; 21].

From a practical point of view, ensuring "humane control" in HR systems is not only about the formal implementation of technology, but also about creating a comprehensive approach - with adaptation of algorithms, monitoring, clear audits, and the role of a human as a "springboard" at critical moments.

Firstly, automated ATS systems often screen out migrants' resumes due to the non-recognition of foreign diplomas or visa formats. The MDPI study notes: *"automated screening processes tend to filter out candidates based on rigid criteria, such as visa requirements and standardized educational credentials, which do not take into account the diverse backgrounds of migrant workers"* [18]. This leads to the conclusion that many candidates who are potentially qualified simply do not pass the initial selection process. This situation underscores the need to adapt ATS algorithms to be more flexible and take into account the multicultural characteristics of migrants. Only with such adaptation can recruitment automation contribute to more inclusive and fair employment.

Second, an important aspect is the audit of algorithms for bias. Automatic solutions, for example, distinguish candidates by nationality even without explicit markers. It is recommended to use public tools (such as IBM AI Explainability 360), regular checks by HR specialists, and independent audit teams [12].

Thirdly, there is a global and European experience of "humane control" through a combination of automation and human supervision. In Poland, the Facebook Messenger-based chatbot MyMigrationBot has shown to be effective in helping migrants prepare for the recruitment stages by analyzing soft and hard skills and providing appropriate feedback [16].

Fourthly, VR/AR training and LMS courses integrated with such platforms allow not only to familiarize yourself step by step with the rules of corporations and the local market, but also to avoid culture shock. In practice, similar programs in the Czech Republic and Romania reduce the adaptation period by 30-40% (according to internal data from partner companies).

Fifth, monitoring the legal status of an employee is critical. Automated systems integrated with state employment services provide timely reminders of visa expiry, medical monitoring, or work permit renewal. Romania's experience confirms a 25% reduction in the risk of unintentional overstaying of documents on average.

Thus, the practical key to successful automation is the implementation of a hybrid model, as shown in Fig. 1.

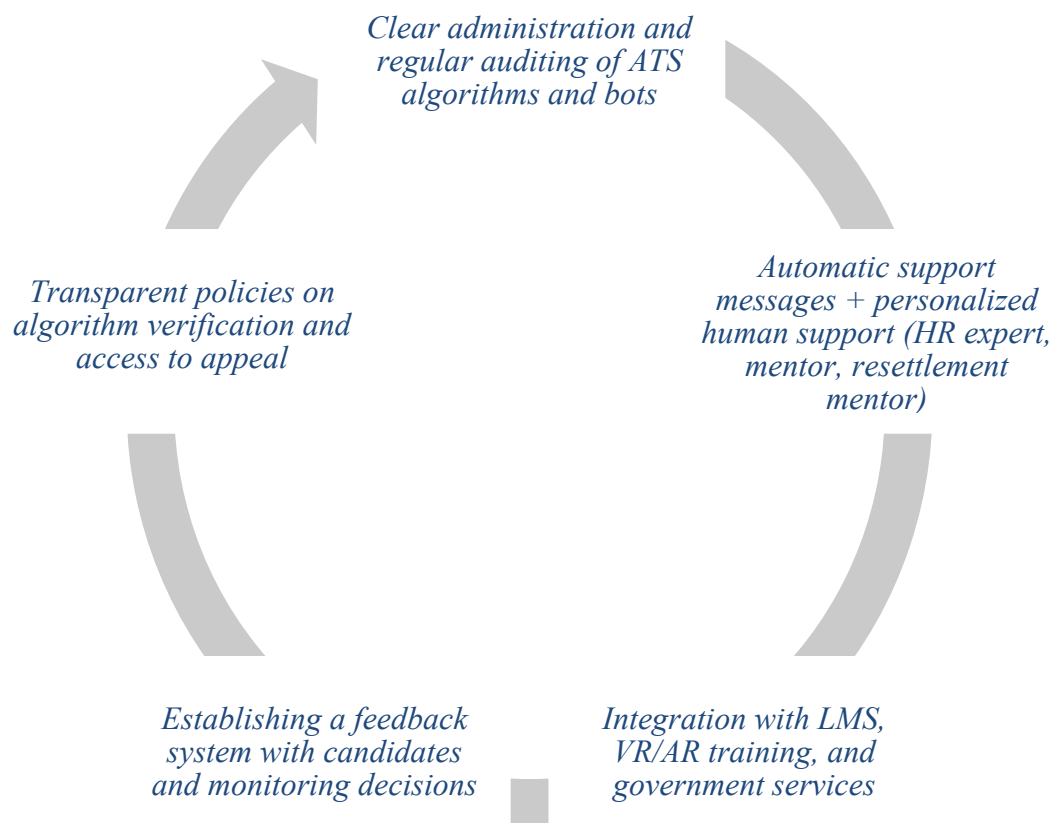


Fig. 1. Hybrid HR automation model with elements of transparency, training and human support

This approach allows preserving the benefits of digitalization (speed, objectivity, and economy) while protecting the rights of migrants and ensuring inclusive employment.

Conclusions

The study confirms that HR automation is a powerful tool for supporting the stable employment of migrants in Eastern Europe, in particular in Poland, the Czech Republic, Romania, and other countries that are also labor recipient countries. Digital tools - from ATS

systems and chatbots to adaptation and language support platforms - significantly speed up and optimize the recruitment process, reduce the administrative burden on HR departments, and reduce the influence of the human factor in decision-making.

It is especially important that automation helps to reduce barriers to entry into the labor market for vulnerable populations, including people without recognized diplomas, incomplete language skills, or no experience in a new country. Through predictive analytics, integrated learning, online courses, and cultural adaptation tools, digital HR solutions are actually creating a new space for social inclusion.

However, a key condition for the effectiveness of such automation is its flexibility to migrants' cultural, linguistic, and professional differences. Algorithms must take into account different educational systems, atypical career trajectories, and multilingual contexts. The success of automated solutions also directly depends on maintaining a balance between machine processing and human support: the final decision, especially in matters of ethical assessment, candidate motivation, or cultural compatibility, should remain with the specialist.

Thus, HR automation can not only increase the efficiency of the labor market, but also act as a driver of social mobility and economic integration of migrants. However, its implementation requires a high level of technological maturity of companies, ethical responsibility, and cross-sectoral cooperation between the state, business, and civil society.

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