

## ELEMENTS OF DIGITALIZATION OF PUBLIC MANAGEMENT AND ADMINISTRATION: INFORMATION TECHNOLOGIES AND ARTIFICIAL INTELLIGENCE IN THE FIELD OF HR

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**Abstract:** The article considers modern challenges in the field of human resources management in organizations of the public administration sector. The role of digital technologies, platform and AI-based solutions in human resource management within BANI environment is analyzed. The ways of transformation of personnel (HR) processes are described, in particular on the basis of talent marketplaces and gamification. General characteristics of innovative HRM technologies for public management organizations are systematized.

**Keywords:** digitalization; public administration; artificial intelligence; human resource management.

### 1 Introduction

Digitalization is an irreversible process covering all spheres of human life. It represents a part of public relations, being displayed, in particular, in public administration. The creation, functioning, and development of e-government is based on the active use of modern digital technologies. The digitalization of public administration is designed to reduce administrative barriers and make the interaction of citizens and businesses with government bodies simpler, faster, more comfortable and transparent, to eliminate the impact of subjective factors, in particular, those associated with the prerequisites for the emergence of corruption. One of the goals of the digital transformation of public administration is to make the interaction between citizens and authorities practically invisible, seamless, to create an ecosystem in which a citizen will automatically, in a proactive mode, receive the services he needs [51].

The COVID-19 pandemic has confirmed the high importance of digitalization of public administration processes, so it can be expected that over the coming years, its digital transformation will be in the focus of attention of both researchers and government authorities. The digitalization of public administration should be based on a set of principles and actions aimed at maximizing efficiency, both to achieve specific short-term goals and to implement long-term development projects. Digital transformation is one of the new priorities in the development of public administration. It should focus on the working-out of cross-cutting initiatives at the national scale, which will allow the flexible deployment of efficient, secure, and easy-to-use digital public services, provide access to real-time electronic services, link disparate data held by various national and regional administrative bodies into a single system.

Transformational logic requires rethinking the performance of government functions, the provision of public services, the implementation of control and supervision activities, etc [3-5]. At the same time, the concepts used in this area should be separated, which allows for a more consistent and logical organization of planning and implementation of transformational activities related to digitalization and digital transformation of public administration processes.

However, digital technologies are used in state and municipal government institutions not only in the field of providing services to the population and in the area of interaction between interdepartmental organizations, but also in HRM. A feature of the current stage of social development is the gradual replacement of the role of traditional communication channels with electronic ones, and then with network ones, which is caused precisely by progress in the field of information and telecommunication technologies, and this directly applies to HRM. At the same time, while the digitalization of public administration functions is being considered today in detail among scientists and experts, the digital transformation of processes in the field of HR has not yet received enough attention.

### 2 Materials and Methods

The methodological basis of the study consisted of the works of scientists and practitioners in the field of HRM, digital economy, digitalization of business processes, the theory of provision and functioning of public administration bodies, information and resource support for state and municipal government, New Public Management. The work used such methods of scientific research as a systematic approach, analytical and dialectical methods, the method of analysis and synthesis, the structural-functional approach.

### 3 Results and Discussion

In modern conditions of labor organization, the search for effective ways of interacting with personnel is the most important task, both for the corporate sector of the economy and for the state. Human resource management is the solution of global, long-term tasks, the achievement of strategic goals by identifying and developing individual characteristics and talents, planning human resources and personnel costs. The intellectual potential of the personnel, employer brand and personnel policy are the sources of growth in the value of the company's intangible assets and the business as a whole. Human resource management forms the competitive advantages of the organization and allows taking a leading position in the market. It is known as an axiom that distinctive feature of human resources from other resources is the ability to develop, improve, generate new ideas, and their possibilities and initiative are unlimited, while other resources are limited [1; 2]. Recent studies show that the management of modern companies around the world is aware of the need to automate simple repetitive personnel management processes, such as personnel records and time tracking, scheduling vacations and days off, payroll and various kinds of bonuses, compensations and benefits, internal communications, public opinion polls, submission of proposals for improving business processes, posting information about vacancies and the initial stages of recruitment, a number of aspects of adaptation, assessment, and training of personnel [66]. Accordingly, a significant share of research in the field of human resource management falls on the corporate sector.

Meanwhile, the public sector must compete on an equal footing in the labor market for the most modern, qualified, young personnel, who are attracted, first of all, by potential involvement in solving large-scale national problems and the opportunity for professional development. In the personnel management system of the public sector, it is necessary to increase the efficiency of HR services work through the creation of advanced technological HR systems.

The following are declared as priorities for the coming years in the direction of HR systems in public administration sector of most countries [21. 65]:

- Staff training and development. In order to make a breakthrough in the process of system transformation and provide public authorities with highly qualified specialists with the skills, competencies, and experience necessary to achieve national goals, it is needed to revise the legislative norms and methodological recommendations that regulate the personnel management system in the civil service and support their procedures and tools, as well as introduce new processes for working with personnel and human capital [9-12]. An important area should be the development of soft skills (basic communication skills, self-management skills, productive thinking, management skills) and hard skills.
- Active work on the formation of a personnel reserve using modern resources (personnel reserve of executive authorities, reserve of managerial personnel and youth personnel reserve, personnel portal of the relevant department, etc.) and optimization of the functioning of personnel reserves (for example, digitization when receiving and storing documents of candidates and current civil servants);
- Work with key talents, high-potential employees. Currently, noticeably insufficient attention is paid to the process of identifying and retaining high-potential employees; criteria for assessing the potential of personnel have not been developed;
- Improvement of the motivational program. It is recognized as necessary to carry out activities aimed at creating a corporate spirit by meeting the social needs of employees and the needs for involvement in their activities.
- Selection and adaptation of personnel. In particular, in European countries, appointed civil servants undergo a mandatory initial training course for 1-2 months in frames of the adaptation program for civil servants. Such professional adaptation programs have gained relevance and significance, since they can reduce start-up costs by saving the time of the manager and work colleagues.
- Digitalization of HR processes in the public service. At the initial stage of digitalization of HR processes in the public administration sector, it is possible to use digital personnel management programs that are already actively used in the commercial sector, including state-owned companies [14-17]. These are chatbots, asynchronous video interviews (that is, a form of interview that does not require the simultaneous presence of a recruiter and an applicant), predictive analytics (predicting likely behavior patterns of future employees), etc. Creation of a unified IT-platform for the implementation of centralized full-cycle personnel management would allow combining services such as a register of uniform methodological rules and standards, a register of profiles, open vacancies, job seekers and active civil servants, training materials, as well as all the tools necessary to work within a single HR management cycle in the public administration sector [19; 20]. The full cycle of centralized personnel management includes personnel planning, recruitment, evaluation, training and motivation of employees. It is expedient to transform the current personnel departments in public authorities into full-fledged HR units and attract competent specialists widely using technologies in their work activity.
- Building an HR analytics system in the public administration sector. Basically, to assess the work of a civil servant today, indicators of the qualification and age structure of personnel are used, as well as employee satisfaction; retention of staff (staff turnover), managerial performance and employee performance [22; 24]. But HR analytics makes it possible to carry out analytics and statistics on personnel, build recruitment strategies, evaluate personnel performance using the most advanced digital technologies.

In the "new reality" of today, a new acronym, BANI, began to be used to characterize the mechanisms and conditions for the existence of the business environment. The term "BANI" was coined by futurist Jamais Cascio a few years before the pandemic, but namely COVID-19 pandemic confirmed his

"prediction." In Cascio's opinion, the VUCA acronym is starting to become "obsolete," so many of the models and tools developed by experienced business strategists need to be rethought and need to be adapted, and some need to be reinvented to improve the efficiency of working in a VUCA environment. In the BANI world, the key characteristics of the VUCA world are becoming more complex, new economic models and business structures are emerging in which the usual volatility, uncertainty or complexity are no longer relevant to understanding what is really happening [67]. Cascio not only accurately described the new economic reality, identified its key risks and challenges, but also showed possible directions for the development of economic entities aimed at minimizing the negative manifestations of the BANI-world (see Figure 1 below). BANI-world thus challenges the established organizational structures and management system, including the personnel management system. In the changed conditions, the efficiency of the organization's functioning no longer depends on the level of development of the hard skills of its employees.

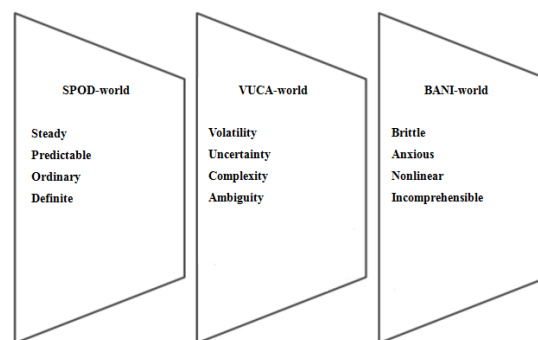


Figure 1. Stages of business environment evolution

The same paradigmatic change of environment concerns also public management. Public administration functions in an increasingly complex political, inter-administrative, legal, and socio-cultural context. Consequently, public managers face sound problems [26-31]. At the same time, the activities of the government are constantly under the scrutiny of politicians, journalists, interested citizens and social networks. Thus, the external environment for the functioning of public administration bodies is increasingly reminiscent of the turbulent environment of modern business. Accordingly, if to talk about the now widely accepted NPM (New Public Management) paradigm, the competencies of civil servants should be close to the competencies of managers in the business sector.

In the digital economy, the most important human qualities are the possession of a huge amount of information, readiness for rapid changes, the desire to learn more and more, sociability, versatility, and readiness for drastic changes. Industry 4.0 or 4th industrial revolution includes the prevalence of global networks, the emergence of neural networks, arising and fast evolution of artificial intelligence [32-36]. All this affects the HR management system not only in any company, but also in the government sector.

The civil service is characterized by a significant regulation of the activities of employees, a hierarchical structure, the presence of more equal, transparent and stable working conditions compared to business structures, which logically follows from the concept of Weber's rational bureaucracy [38-40; 42; 57]. However, the reforms of the last twenty years, aimed at introducing New Public Management, have led to a change in the model of people management in the civil service, bringing together the public and private sectors, primarily through the introduction of performance evaluation of civil servants.

The relevance of the transition from the model of personnel management to the model of human resource management in the public civil service is due, first of all, to the fact that human resource management implies, first of all, "an open

communication channel for both management and subordinates, as well as three-way interaction, where the main actor appears - consumer of public services - society" [68].

According to experts, public sector organizations that want to compete for and retain in-demand candidates need to simplify the application process and the selection process for civil servants in general [6, 21]. It is important to ensure that the application and candidate review process is efficient and timely so that candidates are not hired by other organizations or companies. The government often competes with the private sector for the same candidates and selection should be carried out at the same rate in order to hire the best people [44-50]. With the job market as competitive as it is now, job seekers have little patience for overly burdensome and lengthy recruitment processes. Thus, public sector employers need to review their recruitment processes and work with all stakeholders to implement reforms that will improve the efficiency and rationalization of HR management.

Similarly, the same problems that can manifest as frustratingly rigid job parameters, hidden work processes, and limited opportunities for promotion or pay increases for civil servants can also manifest as employee retention problems [18]. One of the biggest challenges faced by HR departments in the public sector is that there is a lack of engagement due to the bureaucratic systems and budgetary constraints that exist in many organizations.

While some elements will not change any time soon (reviewing the pay scale and job classification may not be within the purview of the HR department), HR departments can work with management to improve job satisfaction for civil servants where possible. The main factor in the satisfaction of employees with their daily work and career in general is how many opportunities they are offered for training, development, and acquisition of new skills by a state institution [13].

A persistent problem, experts say, is the perception that jobs in the public sector pay less than those in the private sector. And while it is not always the case that public sector employers pay less than their private sector counterparts, there are areas and positions where public sector employers cannot match the compensation and benefit packages that commercial firms offer [52-55]. In the current race to attract the best talent, even highly motivated government departments may find that they cannot adjust salary proposals as quickly or be as flexible about other benefits as private firms.

Thus, the main aspect of personnel management in the public sector is the use of the advantages that the state really offers. While the public sector may not be able to compete with some private sector compensation and benefits, it is critical to communicate the benefits they provide, such as fixed pensions and deferred compensation plans, and the sense of service that comes from working in the community [59]. Calling for a sense of service and community work can be a uniquely persuasive argument for positions in the public sector. The performance of public institutions is critical, and the pandemic has only highlighted to many job seekers the vital role that local government officials, public safety officers, health workers and social service providers play in supporting the collective well-being of the entire country.

Modern trends in personnel assessment are moving away from the standards of a biographical interview, a recruiter does not need to spend time on a detailed analysis of all previous jobs of the applicant - today it is important to assess the candidate's competencies. The modern methodology for assessing competencies has a very structured format, which saves the recruiter's time. The Digital direction in HRM is not only complex software. First of all, HR-Digital is an approach to work, a philosophy [3].

One of the key characteristics of a modern worker can be considered "professional zapping" [58]. The term "professional zapping" can be described as the orientation of employees

towards a quick and constant transition to new knowledge and the development of new competencies (often in a fundamentally different field of activity), an orientation towards continuous professional development and personal growth, a constant "search for a professional self" of an employee to form and update a "portfolio" of professional competencies [63; 64]. Such a "zapping approach" changes the idea of employees about the ideal trajectory of behavior in the labor market, the model and strategy for building a career. In accordance with the new model, an ideal career is not so much moving up the career ladder but rather the constant change of functions, roles, territories, varied experience, which provides the opportunity to acquire a wide range of competencies. Therefore, the employee may not have a clear career development plan, and after each stage, orientation in the current organizational landscape and options for the next step are determined. While earlier there were no strict requirements for tenure, now the recommended time for an employee to stay in one position is a maximum of 4-5 years [56].

The actualization of HR marketing has become a global trend in 2019-2020. Namely the development of information and communication technologies has become the imperative of increasing attention to the tools of external and internal HR branding. Among the most effective digital HR marketing channels, there are the following: social media (social networks); job search and career sites; placement of content on third-party resources; various referral programs; virtual communities.

A few years ago, many employers were not familiar with the terms "HR Ambassador" and "HR Evangelist". However, already in 2019, these vacancies began to appear on job sites. The main task of an HR Ambassador is to promote (including online) his company at various HR forums, trainings, conferences, master classes, seminars, etc. The goal of an HR evangelist is to create an innovative culture in the company, create an innovative working environment and develop programs aimed at revealing both the professional and creative potential of employees.

In order to attract and retain employees with the necessary professional and personal qualities and experience, companies are increasingly focusing on the development of HR branding tools [69]. Moreover, while earlier these efforts were often chaotic, situational, and multidirectional, especially among small and medium-sized businesses, now one can observe a tendency towards an increase in the systematic actions of HR managers, enhancing the usefulness and quality of content about the company, increasing the interactivity of interaction between companies and potential employees.

As in other functional subsystems of personnel management, digital technologies are actively introduced into the recruiting process at all stages. The key trends in this area are the automation of screening and the recruitment process [70-72]. Among the tools for digital recruiting of personnel, one can single out such tools as: a recruiter robot; various chatbots used to search for information and communicate with the applicant, performing administrative work (scheduling meetings, maintaining lists of applicants and creating detailed candidate profiles); work with Big Data; cognitive selection (Design Thinking); aggregation and uberization (employer interactions with third-party recruiters whose portfolios are collected on digital platforms); referral recruiting, which involves the creation of professional communities and industry conferences on the Internet (in referral recruiting, networking has become the engine of the recruitment process).

New business and HR strategies based on digital technologies increase the effectiveness of management decisions: automated recruiting, transition to virtual workplaces, individualization – creating an environment for self-realization and development for each employee, HR analytics and performance management.

The "Big HR tech," which enables the collection and processing of data on cloud-based HR systems, provides the foundation for building fully automated, intelligent HR processes based on machine learning. This enables an even higher level of

efficiency. In theory, these applications can be used to reduce staff turnover, assess employee sentiment, measure changes in the perception of the employer's brand, and determine the type of employee that is most effective in a given organization, in a given position, and for a given region. As a result, work gets done faster, and human resources have time for more strategic and creative tasks. For example, on average, a recruiter invites only 5 out of 250 applicants screened on their behalf by the automated system to the interview stage.

Big HR tech is gaining traction across service industries. For example, in 2018, SAP created a smart recruiting system based on machine learning for a large bank. When recruiting employees, it automatically analyzes resumes and opens profiles of job seekers on social networks. Then, it compares them with data about people who have already been selected for a similar position and are successfully working in the company. If the job seeker's profile is similar to that of a successful employee, the system recommends hiring him and explains the reasons for choosing [60]. A smart system developed by SAP analyzes the experience, skills, and appraisal results of each individual employee, and then finds the most suitable positions for career growth. It tells everyone what skills need to be improved in order to increase the chances for a new position, and independently appoints the necessary refresher courses for this [61]. Having prepared in advance, a person, with a high probability, can move up the career ladder as soon as a vacancy appears, and immediately successfully start work. Transparent growth conditions within the company increase employee motivation, and managers always have a pool of internal candidates for important vacancies.

One of the potential solutions for enhancing HRM in public management is to leverage artificial intelligence (AI) in talent management, in frames of the so-called Talent Engine. The Talent Engine of the future is a network of interconnected and interdependent actors and entities that collaborate to create value and achieve shared goals. This network uses data and Artificial Intelligence to create new processes for talent acquisition, learning, internal mobility, engagement, compensation and rewards. Individuals are drawn into the Talent Engine that leverages AI to provide personalized recommendations based on interests, preferences, goals, and skill levels. These learning communities provide a sense of belonging, trust, and accountability among talents in an organization. Talents can also take advantage of professional communities that use AI to identify potential mentors, mentees, peers, or experts who can provide support, advice, or feedback.

J. Bersin, founder of Bersin by Deloitte talks about building and testing AI-based coaching tools. These systems used data from high-performing teams and were "tuned" to the characteristics of the organization's employees and teams. Comparing data on individual and team problems with data from high-performing teams, as well as using tools to motivate managers and leaders to take effective actions, they were able to help employees improve their performance by 25% in three months of using the system [7].

One of the most successful and innovative solutions was developed by the U.S. company MogulHospitality. The solution is designed based on Talent Engine principle. The AI matching system can identify talents who demonstrate their capability to perform the job, such as Assistant General Managers, Hotel Managers, and primary directors and expand the pool of talents by looking into other industries that have similar or transferable skills and experience. The matching system can also be utilized in autopilot mode which can process job descriptions and use industry specific variables to search through a database and crawl the internet. It can also contact the most suitable talents with personalized messages that match the employer's brand and tone. The system can also help employers by providing a simple and intuitive chat interface, that is powered by the GPT model, to create and manage their job postings. A dashboard provides insights into talent pipelines by position and geography including talent tier, worth, experience level and readiness for

promotion. Employers can "drill down" into each position to understand the distribution of talent by multiple dimensions including brand, product type, geography and union experience. An experiential learning zone uses Natural Language Processing (NLP) to analyze an employee's queries and feedback, and generates relevant responses or suggestions. Talents can utilize Augmented and Virtual Reality (AR/VR) training, which are immersive and interactive learning experiences that simulate real-world scenarios. For example, the training includes moments of truth in customer service and develops conflict resolution skills, adapting the difficulty of the training according to the employee's performance [73]. AR/VR training can also use computer vision and speech recognition to capture the employee's gesture and voice to provide real-time feedback on whether his or her tone reflects the brand's tone and voice. Experiential learning can use AI to create personalized learning paths for employees based on their skills, career pathways, and preferences. AI can also help match employees with suitable projects, assignments, or gig jobs that can provide them with hands-on experience and exposure to different roles or functions. While this solution is developed for hospitality industry, its flexibility and its very essence allows adjusting it for any sector, in particular, public management.

Along with the change in recruiting tools, there is an accelerated digital transformation of employee training and assessment. The main trends in the system of employee training, which have received further development, can be briefly summarized as follows:

1. "Setting up" digital training content for each employee and providing them with access to training programs at any time, anywhere, and with any type of device (implementation of a mobile learning system and cross-platform solutions).
2. Formation of an integral system of electronic distance learning, including:
  - Micro and macro training online courses;
  - Virtual platforms for learning (solving cases and exercises in a virtual environment);
  - The use of artificial intelligence in the learning process and the creation of a student management system on this basis (a virtual trainer maintains the development profile of each student employee in a single database, helps track progress in the competencies and productivity of employees and offers additional educational programs based on organizational goals and achievements of employees);
  - Video learning (assimilation and memorization of information is more effective when using video content, compared to text content);
  - Gamification. Gamification tools give quite impressive results, according to surveys (see Figure 2) [18]:

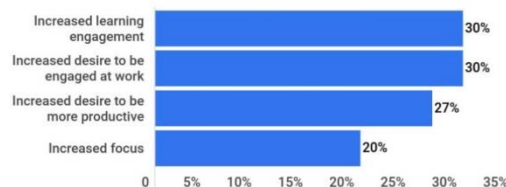


Figure 2. The effect of gamification on employees

The 2018 Talent LMS gamification survey showed the following results (Figure 3):

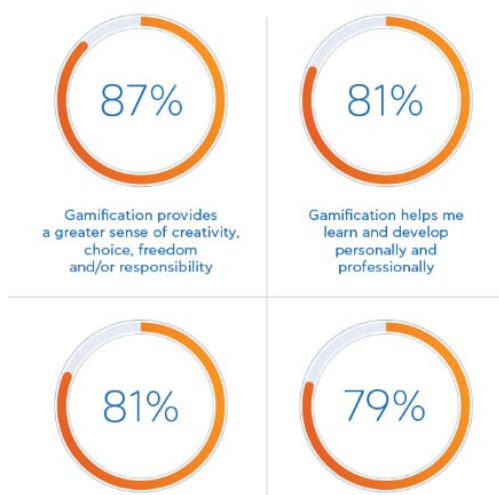


Figure 3. 2018 Talent LMS gamification survey results [13]

The decision to use this kind of tool has quite serious reasons. The realities of the modern labor market are forcing to fight for highly qualified personnel, as well as to form such an HR brand that could not only attract a new workforce, but would also be able to retain it through the formation of loyalty from the staff.

These problems are especially clearly seen in state and municipal institutions, where work is particularly routine. In this regard, gamification serves as an innovative tool that allows achieving the following results: attracting new employees, training current staff, stimulating them and increasing motivation, promoting loyalty to the HR brand, as well as diversifying the workflow and getting away from the routine of their activities.

When introducing gamification into state and municipal institutions, it is necessary to take into account the specifics of the functioning of these structures. In addition, they tend to be conservative in their hiring practices. However, in order for the HR brand of public management institutions to compete in the labor market, it needs to use innovative approaches to the organization of HR structures and follow the trends emerging in this market.

Obsolete HR practices in google spreadsheets format mostly focus on paperwork and routines, but the world of HR automation has stepped forward a long time ago. Gamification in the future until 2025 is considered by the heads of HR departments in the United States as one of the most promising trends [62].

Gamification, as an HR tool in state and municipal institutions, can be used in several ways to solve the problems of HR departments:

- 1) Recruitment. At the moment, many large companies are recruiting through gamification. This is due to the fact that the selection of new employees is perhaps the most voluminous, in terms of time and personnel equivalent, the daily duty of HR department employees. For this reason, insufficient attention is paid to solving strategic problems. When using gamification tools in recruiting, it becomes possible to more rationally allocate resources, both temporary and human. In addition, an important advantage of using gaming platforms is the lack of a personal relationship between the recruiter and the applicant, which significantly increases the efficiency of the recruitment process.
- 2) Motivation of the current staff. The problem of staff motivation is one of the most important problems of the

HR departments. This problem is especially acute in state and municipal institutions, which are distinguished by the routine performance of official duties. Since one of the main tools for motivating human activity is monetary reward, and in state and non-profit organizations its use is minimized, it is necessary to develop new motivational tools to increase employee loyalty to the place of work. In this regard, gamification will serve as a tool for solving the problem. Thanks to the introduction of game mechanisms, it will be possible to dilute the routine of performing labor functions. Also, games held within the workforce give rise to healthy competition, which results in a more intense involvement in the activities of institutions. For the successful performance of their duties, employees receive awards and various bonuses, which allows them to move up the rating table. This 'mechanic' is an effective tool of motivation, because it gives employees the opportunity to realize themselves, feel their involvement in the team, and also gain respect from other employees.

- 3) Staff training. In the meantime, this is one of the main tasks facing HR departments, because the staff is the main resource of any organization, on which its effectiveness depends, and in public management bodies the quality of staff, in fact, even determine the national security. In state and municipal institutions that perform important social functions, increased attention should be paid to the development of personnel, since the well-being of society largely depends on the performance of their official functions. However, since institutions often do not have sufficient financial and human resources to ensure constant and continuous training of staff, this task can be assigned, for example, to online simulators, which will be based on game mechanics. During the game, a person, as a rule, learns new information better. In addition, the game creates conditions that provide an opportunity to practice the acquired knowledge and develop skills in practice.

It should also be noted the active introduction of "sticky learning" technologies that change the work behavior of the employee. According to experts, training is ineffective if it is not reinforced in practice and does not change behavior. A feature of "sticky learning" is the constant repetition, analysis, and updating of training content and approbation of the acquired knowledge in practice [8, 15]. This becomes possible on the basis of the development of multimodal training courses and simulators, which, among other things, allow employees to independently assess their progress in training.

It is also advisable to use the approach of "training that increases confidence", training in priority soft skills. Moreover, the introduction of the Agile philosophy into HR management implies continuous feedback both between managers and subordinates, and between colleagues, the formation of a culture of mutual respect and dialogue.

Talent marketplaces represent a particular innovative phenomenon in HRM and strategic management in general. "A talent marketplace is an internal system within an organization focused on developing talent. The talent marketplace lets employees promote their skills and pursue aspirations. It also allows companies to post projects, gigs, new roles, or even mentoring opportunities ... With a talent marketplace, companies can fulfill their needs with employees who are hungry to grow and learn. Employees benefit because they can pursue their passions, upskill, and grow as professionals. When the opportunities the company offers and employee needs match up, both parties benefit ... I believe the talent marketplace as a platform, is really the future of talent management. Everything we do to manage people eventually falls into this system." Josh Bersin, HR industry leader and BetterUp Science Board Advisor writes [41].

In particular, Fuel50 is the AI-powered talent marketplace that delivers internal talent agility and workforce reskilling. With hyper-personalized AI and a deeply embedded commitment to diversity and inclusion, Fuel50 mobilizes your talent. Fuel50's

ethical AI matches your people to opportunities in real-time, automatically maps your workforce architecture, and provides deep data insights for predictive talent.

Another solution – Workday Human Capital Management (HCM) - adapts to changing needs of employer, changing requirements to employees skills. Your workforce, how and where people work, even the skills you need continue to shift. The platform is based on machine learning and helps understand employees’ skills today and build talent around the skills that will be need tomorrow.

Overall, U.S. HR Analytics market trends are presented in Figure 4 below.



Figure 4. U.S. HR Analytics market trends, 2020-2030, USD million [23]

At the same time, growth is observed in application of HR analytics in government (public administration) sector (see Fig. 5 below). As can be seen from the figure, HR Analytics market share in government sector exceeds the one in manufacturing and even academia.

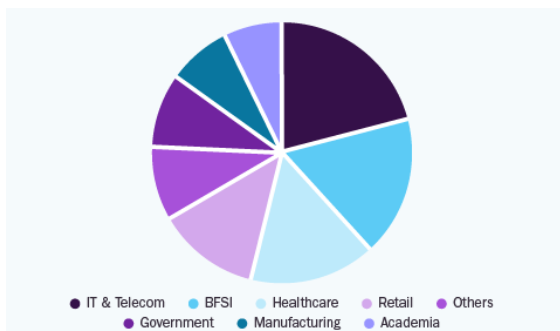


Figure 5. Global HR Analytics market share, by end-use, 2021 (%) [23]

Deployment of AI in HR can occur across the entire talent lifecycle (see Fig. 6).



Figure 6. Deployment of AI in HR throughout the entire talent lifecycle [25]

The capabilities of artificial intelligence are far superior to those of humans when it comes to rapidly processing and analyzing very large amounts of data. This feature allows a person to make a quick and efficient analysis and make the right decisions in difficult situations. Artificial intelligence does not have a

personal understanding of the situation and emotions, so its decisions are the most objective, which is especially important for the public administration sector, where both prejudice and nepotism are very significant potential risk factors in recruiting and HRM. Being data-driven, AI reduces bias in HR processes such as recruitment and selection, resulting in fairer and more consistent decision making.

Automation of a part of HR processes makes managers more independent and enables managing human resources more effectively. The capabilities of AI can become a great value for employees and for the entire organization. Real-time data collected using artificial intelligence allows predicting problems, as well as making quick decisions.

Thanks to modern AI-based HR tools, in an employee’s digital profile, it is possible to record what knowledge and skills he has, whether he knows how to work with digital technologies, manage teams and motivate other people, how these people feel under his leadership and what he likes to do and what he does not like.

The use of digital profiles allows changing the approach to managing organization and automating the entire routine as much as possible. The whole point now comes down to connecting the personal goals of the employee with the tasks of the public management organization or its particular department.

The digital profile is the core of the modern HR system. It not only stores information from the employee’s resume, but also constantly accumulates new data about his competencies, role in the organization, and contribution to the common cause. For example, in the Human Capital Management System from TalentTech, this information is provided by modules related to the selection, adaptation, training, engagement, and effectiveness of personnel. They can enrich employee profiles both individually and all together. The modular system allows creating digital profiles at any stage of the employee’s interaction with the organization. A digital twin can appear both for a newcomer and for the entire staff at once if to conduct a large-scale assessment of competencies, an engagement survey, a 360-degree survey, or automate the goal-setting system.

When implemented correctly, AI helps employees find mentors, choose the right training, and give advice on further career development. In addition, technologies can be configured in such a way that people feel comfortable in them, as in a social network. Thanks to this, employees can regularly update their data, share achievements with the team. AI-powered HR teams are streamlining processes and accelerating access to the right data. It also helps reduce the need for administration, improves analytics, and opens the door to “real” strategic people planning [37]. Due to this, HR experts have time to assess the current situation in the organization: what kind of people the organization needs, what skills can be developed within the team, and which ones can be attracted from outside (including through outsourcing), and so on.

In the field of recruitment, even in public administration, despite the presence of clearly structured job descriptions and requirements for applicants, many recruitment decisions are made intuitively. One study found that most hiring managers make judgments about a candidate within the first 60 seconds of a meeting, often based on the candidate’s appearance, handshake, clothing, or speech, while often overlooking what characteristics, experience, education, and personality character traits guarantee success in the performance of a particular role. As a result, candidates are selected incorrectly in 30-40% of cases [68].

AI-powered algorithms can scour resumes, find suitable candidates within organization, identify high-performing employees, and even provide interview transcripts, helping to choose the talent most likely to be the most successful. In particular, when using Pymetrics AI-based assessment, built on the principles of gamification, due to eliminating all the mistakes made in the process of conducting interviews and reviewing the

“track record” of candidates made within the current process, the success rate can increase by more than 30% [43].

Thus, new technologies are the main driver of the transformation of HR management tools and technologies in public administration bodies, changing the requirements for employees and leaders. AI-powered tools, HR process automation, cloud computing and online collaboration platforms are making HR systems more responsive, engaging and personalized. In general, the benefits of using the achievements of the new technological paradigm in HR management are manifested in increased flexibility, “simplification and remoteness” and, as a result, the effectiveness of many personnel management tools.

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**Primary Paper Section: A**

**Secondary Paper Section: AE**