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**TRENDS IN THE DEVELOPMENT OF HR TECHNOLOGIES IN THE CONTEXT OF THE
DEVELOPMENT OF THE DIGITAL ECONOMY AND SOCIETY
ТЕНДЕНЦІЇ РОЗВИТКУ HR-ТЕХНОЛОГІЙ В УМОВАХ РОЗВИТКУ ЦИФРОВОЇ ЕКОНОМІКИ
ТА СУСПІЛЬСТВА**

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The rapid development of digital technologies, caused by modern challenges, leads to radical changes in the main spheres of society's life, including the work process. Society spends most of its life at work, so many scientists and researchers are looking for ways to increase labor productivity by possibly minimizing labor costs. By implementing digital technologies in personnel management, a large part of managers wants to get the maximum increase in labor productivity, which will ensure an increase in the competitiveness of enterprises. However, comparing the costs of implementing digital technologies with and without personnel management, they conclude that such investments need to be more proficient. Despite the costly investment in digital technology, today's challenges force leaders to digitally transform HR to ensure they can compete among the rest. The purpose of writing the article is to research trends in the development of HR technologies in the context of the development of the digital economy and society. The study of the main trends in the development of HR technologies in the conditions of the digital economy and society was carried out, which would allow a comprehensive classification of modern information technologies used in personnel management. The classification of modern information technologies in HR management is disclosed: Internet and Cloud technologies, Big Data analysis, artificial intelligence, and specialized software. It has been proven that for enterprises, there is a wide range of information technologies in the field of HR management, which allows you to choose the products you need for the program; this will increase the productivity of employees and ensure the competitiveness of economic entities. It is proposed that the organization create its information systems for personnel management based on the primary analysis of Big Data, which will ensure appropriate integration with existing processes. It was determined that using chatbots is promising for most enterprises, allowing customers to evaluate their service or provide feedback.

Keywords: HR technologies in personnel management, information and cloud technologies, Big Data analysis, artificial intelligence, chat bots.

Стрімкий розвиток цифрових технологій, спричинений сучасними викликами, призводить до кардинальних змін в основних сферах життєдіяльності суспільства, зокрема в процесі роботи. Більшість власного життя людина проводить на роботі, саме тому значна частина науковців і дослідників перебуває у пошуках шляхів підвищення продуктивності праці з можливістю мінімізації витрат на оплату праці. Впроваджуючи цифрові технології в управління персоналом, значна частина керівників хоче отримати максимальне підвищення продуктивності праці, що забезпечить підвищення конкурентоспроможності підприємств. Однак порівнюючи витрати на впровадження цифрових технологій при управлінні персоналом та без них, роблять висновок про недоцільність таких інвестицій. Попри дороговартісне інвестування в цифрові технології, сучасні виклики змушують керівників впроваджувати цифрову трансформацію в управлінні персоналом, щоб забезпечити конкурентоспроможність. Метою написання статті є дослідження тенденцій розвитку HR-технологій в умовах розвитку цифрової економіки та суспільства. Проведено дослідження основних тенденцій розвитку HR-технологій в умовах розвитку цифрової економіки та суспільства, що дозволило комплексно здійснити класифікацію сучасних інформаційних технологій, які використовують в управлінні персоналом. Розкрито класифікацію сучасних інформаційних технологій в HR-менеджменті, зокрема: інтернет та хмарні технології, аналіз великих даних, штучний інтелект, спеціалізоване програмне забезпечення. Доведено, що підприємства мають широкий спектр вибору інформаційних технологій у сфері HR-менеджменту, який дозволяє обрати для себе необхідні програми продукту. Це дозволить підвищити продуктивність праці працівників і забезпечить конкурентоспроможність суб'єктів господарювання. Запропоновано створення власних інформаційних систем для управління персоналом на основі аналізу великих даних, що дозволить забезпечити відповідну інтеграцію з наявними процесами в організації. Визначено, що перспективним для більшості підприємств є використання чат-ботів, що дозволить клієнтам здійснювати оцінювання обслуговування ними або для зворотного зв'язку.

Ключові слова: HR-технології в управлінні персоналом, інформаційні та хмарні технології, аналіз великих даних, штучний інтелект, чат-боти.

Statement of the problem

The rapid development of digital technologies, caused by modern challenges, leads to radical changes in the main spheres of society's life, including the work process. Society spends most of its life at work, so many scientists and researchers are looking for ways to increase labor productivity by possibly minimizing labor costs. By implementing digital technologies in personnel management, a large part of managers wants to get the maximum increase in labor productivity, which will ensure an increase in the competitiveness of enterprises. However, comparing the costs of implementing digital technologies with and without personnel management, they conclude that such investments could be more efficient. Despite the costly investment in digital technology, today's challenges force leaders to digitally transform HR to ensure they can compete among the rest.

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Researches devoted to digital technologies in personnel management are known among the following scientists: Boyko E., Bey G., Varis I., Kravchuk O., Kramarenko I., Mohylina L., Stegnei M., Sereda G., Orekhova A., Potoskueva A., Hromushyna L., and others. However, digital transformation processes expand the functions and tools of HR technologies in personnel management. That is why studying trends in the development of HR technologies in developing the digital economy and society in modern economic conditions is quite relevant and requires additional research.

The purpose of the research

The purpose of writing the article is to research trends in the development of HR technologies in the context of the development of the digital economy and society.

Presentation of the main research material

As O. Kravchuk & oth. noted, «In connection with the digital revolution, significant changes are taking place in the economy and management, which require introducing innovative measures and the latest digital technologies in personnel management. Organizations are increasingly focusing on automating business processes, and digitalization is becoming necessary for employees' daily activities. In connection with the expansion of the influence of technologies on the business processes of personnel management, attracting and recruiting talented employees are becoming more and more complicated. Digital technologies can help increase employee engagement and retention, create a positive employer brand, and increase employee satisfaction. The growing importance of digital technologies in HR marketing requires HR managers to have knowledge and skills in digital marketing» [1].

If earlier companies could manage without using digital systems, they are unlikely to be able to do so now. In addition to the internal environment of the enterprise, there is an external one (customers, suppliers, competitors, state authorities, and the public), which will seriously influence the level of decision-making. That is why, to ensure the proper level of functioning and competitiveness, enterprises ensure the transition to digital technologies, including personnel management.

The team of authors emphasizes that «Currently, the most powerful tool for ensuring competitiveness and development is the latest personnel management system, considering the requirements of the market economy. Managers need to adopt personnel technologies and use HR technologies for personnel management in their practice. Any institution (enterprise) should use innovative HR technologies and the latest methods of personnel development to modernize its staff. These tools contribute to the development of personnel, and therefore to the development of the institution (enterprise)» [3].

We agree with the authors' opinion that today, the tool of success for many enterprises is using HR technologies in personnel management, which provides an innovative development trajectory. It should be noted that a significant number of business entities, forming their development strategies, define HR technologies in personnel management as a separate sub-strategy that ensures the fulfillment of relevant quality indicators (increase in productivity, reduction of time spent, dynamics of movement and turnover of employees, etc.). Today, every manager should form development strategies based on sustainability and innovation. That is why using HR technologies in personnel management will ensure the implementation of the development strategies that are formed in modern conditions.

It is also necessary to emphasize the advantages of using HR technologies in personnel management for modern enterprises. Yes, Bay G.V. and Sereda G.V. note that «The spread of the use of artificial intelligence in HR management opens new opportunities and advantages for companies:

1) savings on searching for qualified personnel and preventing intellectual capital losses due to probable losses of qualified specialists. For example, the automation of training processes allows you to preserve the knowledge and technologies accumulated in the company, ensuring their loss due to the turnover of specialists who possess this knowledge.

2) increasing confidentiality, which is required of people who, in the performance of HR functions, get access to personal data;

3) reducing the time spent by HR department personnel on administrative tasks (appointment and monitoring of training courses, salary calculation, initial selection of candidates, checking their competencies, etc.), and, accordingly, significant savings in the company's labor costs;

4) increasing the accuracy in the performance of HR functions due to the reduction of the number and frequency of human errors in the administration of the processes of selection, training, calculation of rewards, etc.;

5) reduction of bias in personnel decisions» [5, p. 98].

The use of HR technologies in personnel management allows us to reduce the level of influence of the human factor as much as possible. Everyone knows how managers can influence the correctness of management decisions regarding staff members whom they do not like. Intelligent technologies in personnel management help reduce managers' negative influence on their subordinates. In addition, an essential factor in the development of enterprises is increasing the productivity of personnel, which is why using HR technologies will allow this to be done ten times or more. Also, HR technologies allow the transparent evaluation of the activities of employees and speed up the hiring process. Of course, for most companies, the preservation of commercial secrets is in the first place, which is why HR technologies allow them to ensure the appropriate process for their employees as much as possible. It should be emphasized that modern personnel management can only be imagined using HR technologies. That is why the promising trends of HR technologies in personnel management are the use of the Internet and Cloud technologies. The popularity of Big Data analysis, artificial intelligence, and specialized software is increasing.

Mogilna L. M. & oth. believe that «When researching innovative HR management technologies, special emphasis should be placed on cloud-based solutions for personnel and salary management. Experts say IT business

management systems will soon be integrated with cloud services. The advantage of their use is a significant increase in the efficiency of employees. At the same time, the main disadvantages are the length of the process of implementing cloud solutions in large companies and the difficulty of choosing the necessary technology from the options offered by the market. However, as practice shows, organizations that pay due attention to advanced technologies for working with personnel are always ahead of those who ignore the innovative component of HR management, and additional costs for their implementation bring significant income» [7].

It should also be noted that today, the information technology market offers various types that can be used according to the activity's specifics, considering the number of employees and their costs.

In Fig. 1, the classification of information technologies in HR management is reflected in modern conditions. The corresponding classification reflects the types of HR technologies in personnel management and the software's features. For most enterprises, the most widespread use is the Internet and Cloud technologies in personnel management. However, over time, business owners see significant advantages in forming their information systems based on the primary analysis of Big Data, which ensures implementing a business process approach in management. Almost all enterprise employees know all the features of the activity process «from entry to exit». Currently, the use of artificial intelligence, namely chatbots in personnel management, is gaining wide popularity, revealing the possibilities of rational evaluation of personnel activities.

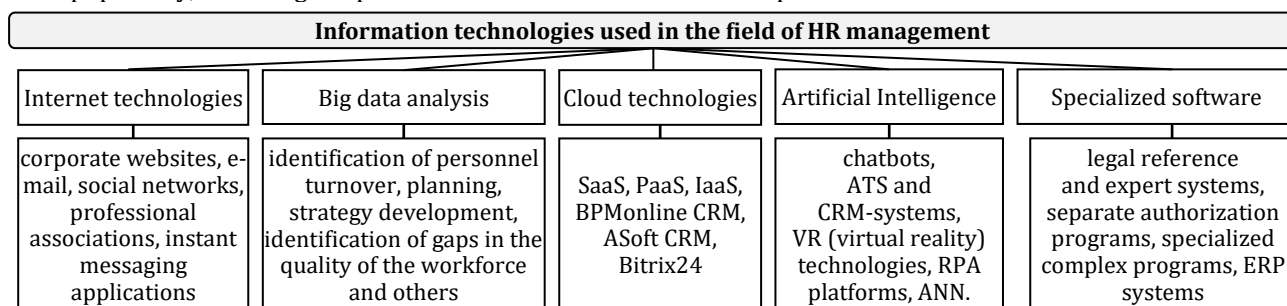


Fig. 1. Classification of information technologies in the field of HR management according to modern conditions. Source: [7].

The classification of types of information technologies in HR management, respectively, allows the modern manager to form the possibilities of their use. Suppose the enterprise seeks to create its information system for personnel management. In that case, it is necessary to use Big Data Analysis to ensure appropriate integration with existing processes in the organization. We consider it necessary to use chatbots to evaluate the performance of employees objectively, for example, to allow customers to evaluate their service or to provide feedback.

Kravchuk O. I. & oth. emphasize that «In the introduction of digital technologies into the practice of personnel management, there are trends towards the use of communication robots, or so-called «chatbots», social networks, big data analysis, applications and analytics based on artificial intelligence, machine learning in personnel management, cloud technologies in software for the needs of personnel management. Developers of digital solutions provide the technical component of digital HR. At the same time, company management and HR departments must build their integrated strategies and programs for digital personnel management. However, the extent to which they meet the need for automation of personnel management business processes still needs further research. At the same time, the transition to digital transformation should be based on an in-depth analysis of internal and external factors, the study of the advantages and disadvantages of existing digital technologies, and industry limitations, which should become the directions of further research in this scientific issues» [8].

Among the main disadvantages of using information technologies for enterprises is their cost. However, this cost depends on the functional features of various information technologies in HR management. Only a few organizations will have their websites if we consider Internet technologies. It should be noted that if the company's page is unavailable online, it will only repel a potential buyer, supplier, etc. Creating a website for an enterprise today can range from one and a half thousand UAH, but this is a small investment that will provide a return on capital. In addition to Internet technologies, Cloud technologies are essential today; for example, the cloud environment of Google Drive can contain a significant part of information and be available at any time to users who have received appropriate access; this allows for faster information exchange.

In general, enterprises have a wide range of information technologies available in HR management. This allows them to choose the products necessary for the program, which will increase employees' productivity and ensure the competitiveness of economic entities.

Chernikova N. M., Voronina V. L., and Chebotaryov K. G. believe that «Modern technologies are changing the situation in personnel management, providing convenient software for HR managers and employees of companies. The selection and implementation of modern HR process automation systems (HRM and ERP systems) in the activities of domestic enterprises is important in the work of modern companies and will help to effectively solve issues related to the management of HR processes, considering the individual achievements of each employee and his contribution in teamwork, as well as satisfaction with working conditions and the motivation system, etc.» [9, p. 74].

Therefore, modern enterprises should create their information technology system to automate HR processes. This will ensure effective management of the internal and external environment and an individual approach to business process management in the enterprise development strategy.

So Hutsulyak N. P. emphasizes that «Modern personnel management technologies require the presence and development of a holistic strategy for the development of the organization, HR and IT strategies, which are

coordinated with each other and allow the effective use of modern personnel management technologies at all levels of the organization for its successful development and stable operation or/and career growth of each employer» [10, p. 117].

It is expedient for each enterprise to form its development strategy based on the operation conditions, considering components such as personnel management and information technologies. As experience shows, forming a business development strategy is a smooth process. Most companies have development strategies and have successfully implemented them. However, there is no systematic process for evaluating the effectiveness of strategy implementation at each implementation stage, which allows one to adjust actions and react promptly to deviations from the planned results.

Conclusions and prospects for further research

The main trends in the development of HR technologies in the conditions of the digital economy and society were studied, which would allow a comprehensive classification of modern information technologies used in personnel management. The classification of modern information technologies in HR management is disclosed as Internet and Cloud technologies, Big Data analysis, artificial intelligence, and specialized software.

It has been proven that for enterprises, there is a wide range of information technologies in the field of HR management, which allows you to choose the products you need for the program; this will increase the productivity of employees and ensure the competitiveness of economic entities. It is proposed that the organization create its information systems for personnel management based on the primary analysis of Big Data, which will ensure appropriate integration with existing processes. It was determined that using chatbots is promising for most enterprises, allowing customers to evaluate their service or provide feedback.

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