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Current problems of using artificial intelligence in HR management in Kazakhstan

A.G. Bekisheva*^{id}, K.N. Beketova^{id}

Korkyt Ata Kyzylorda University, Kyzylorda, Kazakhstan

(E-mail: bekisheva.aigerim1@mail.ru, kamar82@mail.ru)

Abstract. The article provides an understanding of artificial intelligence in the field of HR, and it is said that the digitization of the industry is reflected in the widespread use of artificial intelligence. The theory and history of the field of artificial intelligence is systematized by reviewing the works of researchers.

The possibilities of using artificial intelligence are clarified and its efficiency is considered. As a result of the study, it was determined that artificial intelligence is used in four main categories in the field of HR, and it was found that there is a high demand for automated resume search, analysis, and selection services. At the same time, in order to invite candidates for a vacant position, including the identification of qualified talented employees, chatbots, Skype interviews, the use of information on online recruiting platforms such as HeadHunter, notification of vacancies at fairs, and pilot projects introduced by the state will be analyzed. The features of artificial intelligence programs introduced in the Kazakhstan labor exchange, and changes brought to the HR system, the advantages and disadvantages will be discussed. Especially as the most effective programs in the field of artificial intelligence in recent years: IBM's Deep Blue program, Alvin program for driving, and Microsoft Application and Services Group's talking robot program, the importance of research on the specificity of programs in the field of medicine and pharmaceuticals will be analyzed and considered as examples of regional enterprises.

Keywords: HR, artificial intelligence, company, electronic system, recruiting, chatbot, program.

Introduction

The recent rapid development of new technologies has ensured a change in the requirements for information systems in various fields and increased interest in artificial intelligence. Mathematician Alan Turing, one of the authors of artificial intelligence, already in 1950 asked "Does a machine have intelligence?" The test designed to find an answer to the question was the beginning of our success today.

Currently, artificial intelligence in the electronic system is leading to the discovery of new discoveries every day in universities, scientific centers and companies, and contributes to the achievement of work efficiency [1]. Moreover, the need for useful expert systems in various fields of education and industry is very great. It is also true that HR is often used in all organizational work related to recruitment, selection, job planning, training and development of business skills, evaluation, reward, management, motivation and control of employees [2].

"Artificial intelligence (AI) has gradually entered our lives. Sooner or later, it is clear that machines with the same level of creativity, feeling, and emotional intelligence as humans will appear. When this day comes, we understand that only people cannot be the owners of intelligence" [3], - the researcher's prediction came true. Artificial intelligence is based on knowledge of the human thinking process, but it has become clear that it does not try to accurately copy the work of the human brain, but only tries to simulate its functions with the help of computing tools. The most effective programs in the field of artificial intelligence in recent years: IBM's Deep Blue program that beat Kasparov in chess, Alvin's program for driving, Microsoft Application and Services Group's talking robot program, broadcasting of multilingual TV presenters in the field of journalism, programs in the field of medicine, pharmaceuticals can be named [4].

In this study, we considered the effectiveness and disadvantages of using artificial intelligence in the field of HR in recruitment through an electronic system and determined its help in ensuring work productivity. The main goal is not only to use artificial intelligence effectively in the recruitment process, but also to determine what possible threats and problems there may be, and to determine the specific ways of using artificial intelligence for HR professionals and the impact on the institution's development. In addition, the electronic labor exchange of Kazakhstan specified a model in which artificial intelligence is widely used by job seekers and employers in the selection of proposals for vacancies and resumes. This model makes it possible to analyze the content of the resume submitted by the job seeker in the HR information system, to quickly identify the candidate who meets the parameters required by the employer. In particular, it was found that it is suitable for storing, processing, analyzing, receiving, and distributing information on human resources, quickly announcing the decision made by the management of the organization for the whole team.

In HR, artificial intelligence is used in four main categories: automated resume search and selection; use of chatbots to recruit professionals for vacant positions; adaptation and training of employees; to find talented employees and make a predictive analysis of their development.

The Ministry of Labor and Social Protection of the Republic of Kazakhstan prioritizes the development of digital personnel documentation to minimize the use of paper documentation

during the employment of citizens. In this regard, it is known that the E-HR system has been launched in pilot mode in our country since November 1, 2018, according to the adopted program. In 2024, 5.7 million labor contracts will be registered 440,361 employers will join the system, and 5.1 million employees will be using it to date [5]. The main advantage of this system is that it helps to reduce the time of formalization of employees in personnel departments of institutions. Personal and electronic access to information such as identity card data, education, place of residence, level of health, absence or presence of criminal record of any job seeker is provided.

According to experts, it is said that 80% of business success depends on human capital, that is, the ability of specialists working in the company. That is, increased responsibility of HR managers for the correct selection of company employees and increasing their competence. HR management, Human Resources, i.e. personnel management, and corporate culture formation have become the main problems.

It is also true that human resources management has undergone a great change. This change is taking place because the Internet labor market is being used more actively. Information and communication technologies and technologyization of HR processes is electronic or distance education, e-learning, electronic human resource management have been introduced into daily practice and have started to work effectively. These are use of social networks in video interviews, assessment and selection, monitoring of employees' work, use of various other databases, mobile applications, and use of artificial intelligence in the evaluation of candidates. For example, according to the Personality Insights program, artificial intelligence analyzes the wording and tone of voice to evaluate an individual, that is, by looking at what set of words a person uses to express his thoughts. According to experts, this approach describes human behavior very correctly [6].

E-recruitment is an important aspect of any organization as it directly affects the quality of the workforce. Electronic recruitment has become a popular way to offer job vacancies to job seekers, thereby increasing the number of professionals with the development of technology. According to the technology adoption model, the use of online sources for job searching has become more accessible. Currently, the use of the Internet is widely used in the issue of recruiting personnel through the electronic system, verifying the authenticity of information on qualifications, and checking. This method saves time, and effort, and also effectively implements the recruitment of the right person for a specific position. A certain organization or institution used various informations to recruit employees before the technological progress. For example, the most effective way of informing was the announcements published in periodicals, advertising, information provided by TV channels, recruiting methods, various employment agencies, and many others. Traditionally recognized as recruiting information, this list can also include recruiting through websites, email, and social media.

Large organizations are turning to artificial intelligence to improve decision-making and communication processes even in the application of electronic personnel management. Human resources that contribute to the development of the company play a very important role to win in free market competition. Because the employment of people is one of the most important issues for the economy of our country in the current labor market.

In the course of our research, we analyzed the scientific findings of foreign scientists in the field of artificial intelligence and artificial technologies, and gave priority to identifying the latest changes in the field of personnel management. In order to achieve the goal of the research, to analyze the decisions of companies in various fields in the region to hire specialists, to analyze the decisions that contribute to the development of the professional skills of their employees, to evaluate the extent to which artificial intelligence technologies are used to ensure work productivity, to make a comparative and logical analysis of the information obtained in the interview (offline), and to evaluate statistical data we used methods.

Research materials and methods

The state of Kazakhstan clearly indicated the tasks for the development of artificial intelligence in the strategic plans of the concept of national development and digital transformation until 2025. Until now, the work within the framework of the “Digital Kazakhstan” program, the “Technological breakthrough through digitization, science and innovation” project still needs to be systematized and developed. “The government should focus on the development of artificial intelligence. It is estimated that more than one trillion dollars will be invested in this field in the next few years. Artificial intelligence can significantly contribute to the gross domestic product of countries that have been able to develop it. If we fully use the possibilities of artificial intelligence, we will give a new impetus to the knowledge economy” [7], - President Kassym-Jomart Tokayev emphasized the importance of developing artificial intelligence in Kazakhstan, turning it into a mechanism for achieving the sustainable competitiveness of the economy and improving the welfare and quality of life of the people showed the need to make efforts.

Today's research shows that the history of artificial intelligence began before our era. Aristotle was one of the first to propose the laws of “correct thinking”, and Blaise Pascal made a scientific conclusion that “an arithmetic machine produces an effect closer to thinking than the action of any animal”. Many expert-researchers insist on the opinion that artificial intelligence came from computer science and cybernetics. Mathematical models and new discoveries in the field of neuroscience formed the theoretical basis of the history of the emergence of artificial intelligence. An article published in 1943 by McCulloch Warren and Walter Pitts describing the mathematical model of a neural network marks the beginning of the history of artificial intelligence. At the same time, we highlight the scientific research of Donald Olding Hebb, an outstanding Canadian physiologist and neuropsychologist in this field, Richard Wesley Hamming, who introduced image classification, Von Neumann, one of the founders of computing, Norbert Wiener, the inventor of cybernetics, and Alan Matheson Turing, an English scientist who is considered the father of computer science and artificial intelligence.

The author of the term “artificial intelligence” is John McCarthy. Together with Marvin Minsky, in 1959, he opened one of the first research laboratories of computer science and artificial intelligence at the Massachusetts Institute of Technology. The 3rd edition of the New Oxford American Dictionary defines this concept as “understanding the nature of human intelligence, mind and consciousness, modeling them through cognitive functions for research” [8]: “Visual perception, speech recognition, the theory of computer systems that can perform tasks that

require human intelligence, such as decision-making and translation from one language to another” [9]. Paul Doherty and James Wilson explained it as: “Recognizing, understanding, acting and learning defines it as a system that expands human capabilities” [10].

The emergence of research in the field of artificial intelligence proceeded in two directions: logical and neurogenetic. Early Research in the 1950s and 1960s, the LIPS programming language was created to create artificial intelligence systems, and in the 1960s and 1970s, integrated robots and the first expert systems appeared. In the early 1980s, Hopfield's model of knowledge-based systems was born. The birth of a small computer in the early 1990s contributed to the rapid development of technology. The period of rapid development of artificial intelligence began in the USA in 2000.

Nowadays, artificial intelligence is a new field of information technology. It can be said that humanity is at the stage of real development of artificial intelligence. Because intelligence is thought, consciousness, ability to communicate, to acquire knowledge, to learn. Here, the computer has reached the level where all these capabilities of a person can be performed. It is impossible to predict the limits of its development.

Artificial intelligence is now recommended to be treated as electricity. The main driver of the development of artificial intelligence is the unlimited ability to store and process large amounts of information. “Artificial intelligence not only allows to innovate many processes, but also to make them more effective, increasing labor productivity and supplementing human capabilities” [11], the opinion of the scientists proves its effectiveness in the field of HR.

Today's HR system aims to find the best, most talented people who will perfectly perform their duties as specialists for workgroups. Such a group of people is called hyper performers in the scientific language, a specialist who meets this requirement not only performs the tasks assigned to him with high quality but also accepts the fact that he enjoys the work process he does because of his heart desire and has the opportunity to express himself. HR managers find hyperperformers very difficult and they know that organizing work is not easy. Hyperperformers are convinced of their value in the labor market and HR managers need to adapt and redesign organizational processes in the company to ensure a sharp increase in productivity by retaining their unique abilities.

However, we cannot say that HR managers are highly competent in using the programs offered by artificial intelligence. For example, according to the results of a survey conducted by the research center of the Superjob portal in June 2023 to find out the opinion of HR managers about how much they trust the capabilities of artificial intelligence, 28% of the participants believe that it is not at all adapted to perform their duties, while 25% believe that artificial intelligence is capable of performing only ten percent of the work. While 16% of participants are confident that they can perform twenty-five percent of basic tasks, only 4% of respondents believe that artificial intelligence can perform 99% of the work [12].

The rapid development of technology has brought new changes to all industries. Especially in agreement with the opinion of the researchers that “the level of digitization of the field of HR is reflected in the widespread use of artificial intelligence” [13], “Now the issue of digital technologies is at the stage of research and gradual implementation of personnel management HR processes” [14]. Today, such concepts as “digital economy”, “knowledge economy”, and

“information society” are widely used in the HR service, which contributes to the motivation of the specialist hired for this service and aims to create a new attitude.

It is important to clearly monitor the progress of various changes and reforms in the field of HR, comprehensively analyze the identified problem, point out the advantages and disadvantages, and clarify the opinions and conclusions of experts in the field in a rational way in the presentation of official information.

During the research, we interviewed 10 private company specialists in Kyzylorda. The HR manager of the glass factory and the production of laundry soap and glue together with the oil, construction, gas, and electricity distribution industry specialists who participated in the interview. “What is the impact of the electronic recruitment process on the work of the organization?”, “Does your company's HR system use artificial intelligence technologies?”, “What kind of AI services does HR use at your company?” We analyzed the answers given in the interview about the questions. As a result, the experience, point of view, presented data, and information of the HR manager of each field during the interview contributed to the scientific conclusion.

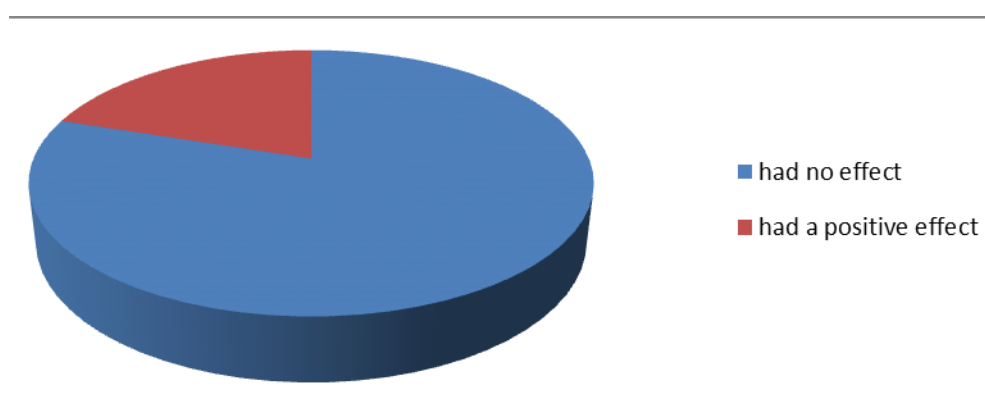


Figure 1. The impact of the electronic recruitment process on the work of the organization

Only 3 out of 10 respondents, i.e. 30 percent, namely the HR manager of the Glass Plant, Construction Company, and Oil Production Company, showed in their experience that the use of electronic selection is highly effective in recruiting candidates. Specialists of the remaining 7 institutions stated that they do not use electronic selection and still work with the traditional admission system.

The HR manager of the glass factory emphasized that the most important advantage of electronic recruitment is that all job seekers are informed, they can quickly sort the resumes of many candidates who want to take up a vacant position, they don't need to spend money on special announcements, and they can quickly find a specialist who meets their requirements by using the Head Hunter site. He warned that as the number of candidates increases, the possibility of selection doubles.

The HR manager of the construction company mentioned that it is possible to increase the number of applicants by posting vacancies on recruitment sites. “HeadHunter is a reliable, job-friendly site that includes all vacancies. It includes information such as types of jobs by

profession, and vacancies. Most importantly, it is very easy to use and clear. We use this site to recruit workers for our company, there is no need to write a resume for applicants, print it out, take special time, and bring it to the workplace. The program itself selects candidates who meet the requirements we entered on the site. This is a very profitable option for us, that is, for both the employer and the job seeker,"- he pointed out.

It is known that an artificial intelligence model has been launched for the posting of vacancies and resumes on the portal of the Electronic Labor Exchange (ELE), similar to the LinkedIn Recruiter search and offer evaluation system, which allows comprehensive analysis of the content of the resume posted by the job seeker, this model is used to improve the performance of the work to the HR managers of the regional company. We know that the time has come to learn how to effectively use it to increase.

Table 1. The pros and cons of artificial intelligence for HR

№	Organization direction	Benefits of artificial intelligence services	Harm of artificial intelligence services
1	Glass factory	During the recruitment process, the CV of the candidates who have the necessary skills for the field will be examined in a short time. That is very convenient for saving time.	It cannot guarantee the accuracy of the information presented in the resume. The security problem is not completely solved due to the dependency on the system program.
2	Oil production company	Artificial intelligence has made it possible to use digital drilling technology. Virtual models of future wells collect data from multiple sensors in real time and have an "autopilot" that changes the operating mode of the drill. It is possible to accelerate the construction of high-tech wells that exceed several kilometers with the help of artificial intelligence. Artificial intelligence allows to save labor. Ideal for automating any system in the industry.	The problem of unemployment is caused by the fact that one robot can perform the work of several people.
3	Gas distribution company	In the world of artificial intelligence, a lot of information is stored, at any time the data related to each employee is available to the company management.	The issue of personal data security is a concern. There are many threats to people's personal privacy and personal data security.
4	Electricity distribution institution	Perfect for customer feedback. Using special chatbots, each customer is informed about the amount of electricity used for a month and is reminded of the need to pay.	We see that artificial intelligence services are not perfect depending on our industry. Inconsistencies often occur in some of the automatically provided

			information. This can cause customers to distrust the company's services.
5	Laundry soap production enterprise	It is very useful to use the electronic system in the search and selection of specialists needed by the institution. First of all, there is no additional cost for advertising and promotion. In the search for a specialist, not only regional staff, but also provides a great opportunity to attract specialists from all over the country.	We see that the programs in the production system are still imperfect. Our industry is not ready to move to a 100 percent automatic system of operation, because if there is a certain failure in the power source used, the operation will stop and the cost will increase.
6	Banking industry	The use of artificial intelligence services in the banking system is increasing every day. It can quickly analyze a large amount of data. First of all, it created an effective way to communicate with customers. The ability to get services offered by any bank online has developed. Custom chatbots can also provide insightful knowledge by answering customer questions.	Facial recognition may contribute to the increase of fraudsters who apply for online credit on behalf of the customer.
7	Construction industry	Today, the creation and processing of photos and videos is carried out using artificial intelligence technologies. That is, it is possible to monitor the movement of equipment and labor on the construction site, and analyze the work progress by installing cameras on any construction object. Drones can cover the entire area of the object. The use of machine learning and artificial intelligence technologies allows to automatically select the necessary materials and equipment depending on the initial stage and volume of construction. For construction companies, taking into account logistics, the use of artificial intelligence can contribute to the formation of the best offer in the market for the location.	No mistakes can be made in the construction work. It is impossible to resort to the services of artificial intelligence in carrying out all the work in this field because no program can replace work that requires hard work, professional experience, and skills.
8	Workshop for the production of goods necessary for construction	All manufacturers of construction materials can post information about their products in the Marketplace system. Construction companies will have the opportunity to purchase the necessary materials at the best price. This means that you can ensure the liquidity of your product without the help of negotiators. Also we need to recognize that artificial intelligence is useful in recruiting specialists who have developed the necessary skills in this field.	It requires a lot of money. There are many advanced types of various techniques with the development of technology. Each time you get a piece of equipment, training and skill formation of a specialist who manages it requires additional costs.

9	Production of glue (tile glue)	It is impossible to create a new product and increase work productivity without today's modern approach. The automatic management system of the enterprise allows to summarize the production work, to determine in advance the volume of low-quality goods and the risk of work stoppage. However, this does not exclude human resources. In any case, the work of the system is controlled by a person. You can increase your income with artificial intelligence services. The problem of increasing work productivity by performing tasks harmful to human health to robots is often raised in this field.	It takes a lot of money to load the entire work system in this field with artificial intelligence. First of all, there is the problem of constantly updating the programs of robots that can perform work effectively, equipping a building suitable for automatic work, and paying for a large amount of energy.
10	Brick manufacturing company	It is useful to select employees who contribute to the development of the company and ensure work productivity. It is also useful to conduct interviews and surveys with employees selected through electronic resumes via Skype. It is also very helpful in accurately determining the amount of raw materials used in our company's products.	Production of fired bricks consists of several working stages. To achieve an artificial intelligence that can do it all requires a large source of funding and a special building equipped.

The information obtained during the interview shows that all industry experts recognize the benefits of artificial intelligence. However, we see that the activity of using artificial intelligence in the field of HR in the regional enterprises and institutions interviewed is too low. After analyzing the results of our research, we found out that this problem is related to the following conditions:

First, the use of artificial intelligence requires the presence of a building equipped for the operation of special equipment and technologies, that is, the situation;

Secondly, the funding source for artificial intelligence is too high;

Thirdly, failure to launch systematic, highly effective common programs for HR managers;

Fourthly, the a lack of skills of HR professionals to use artificial intelligence.

If we take as a basis that in our society there is no one-sided view that the use of artificial intelligence is effective in all fields, we see the reason why it is used only in the field of HR in the direction of selection and recruitment of employees.

Conclusion

The use of artificial intelligence is an effective way to improve the quality of life of the population. That is why the President of the country assesses that “the development of digitization and artificial intelligence technologies is not a fad, but the main means of achieving national competitiveness” [15]. Therefore, the application of artificial intelligence has no boundaries.

Today's research shows that “Artificial intelligence cannot replace humans. But the person who uses it replaces the person who does not use it” proves the truth of the conclusion. The

effectiveness of using artificial intelligence in the field of HR is not limited only to the selection and selection of suitable employees for vacant positions, but the need to systematize the work of ensuring effective use for the professional development and formation of skills of the hired specialists is also an issue on the agenda.

If we look at the situation in the world, we can see that a large amount of investment is being made in the development and active use of artificial intelligence. The conclusion of the researchers shows that our country is at the initial stage of development and application of artificial intelligence due to insufficient qualified personnel and low financial resources. In Kazakhstan, it began to show its results in some areas, especially in some sectors such as medicine and economics. That is why the state and perspective of the development of artificial intelligence in the country, especially the effectiveness of its use in the labor market, still needs to be studied.

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А.Г.Бекишева*, К.Н.Бекетова

Қорқыт Ата атындағы Қызылорда университеті, Қызылорда қ, Қазақстан Республикасы

Қазақстанның еңбек биржасында жасанды интеллектіні қолданудың бүгінгі проблемалары

Аннотация. Мақалада HR саласындағы жасанды интеллект туралы түсінік беріліп, саланы цифрландырылу жасанды интеллектіні кеңінен қолданудан көрініс тауып отырғаны айтылады. Зерттеушілер еңбектеріне шолу жасау арқылы жасанды интеллект саласының теориясы мен тарихы жүйеленеді.

Жасанды интеллектіні пайдалану мүмкіндіктері нақтыланып, тиімділігі қарастырылады. Зерттеу нәтижесінде HR саласында жасанды интеллект төрт негізгі санатта пайдаланылатындығы айқындалып, көбіне автоматтандырылған түйіндемені іздеу, талдау, таңдау қызметіне сұраныстың жоғары екендігі анықталды. Сонымен бірге бос жұмыс орнына үміткерлерді шақыру үшін, оның ішінде талапқа сай талантты қызметкерді анықтауда чатбот, Skype арқылы сұқбаттасу, HeadHunter сияқты онлайн-рекрутинг платформасындағы ақпараттарды пайдалану, бос жұмыс орындары туралы жәрмеңкелерге хабарландыру беру, мемлекет тарапынан енгізілген пилоттық жобалар негізіндегі жұмыстар талданады.

Қазақстан еңбек биржасында жасанды интеллект бойынша енгізілген бағдарламалардың ерекшелігі, HR жүйесіне әкелген өзгерісі, пайдасы мен кемшілігі сөз болады. Әсіресе соңғы жылдардағы жасанды интеллект саласындағы ең тиімді бағдарламалар ретінде: IBM компаниясының Deep Blue бағдарламасы, көлік жүргізуге арналған Alvinn бағдарламасы, Microsoft Application and Services Group жасаған сөйлейтін роботтар бағдарламасы, медицина,

фармацевтика саласындағы бағдарламалар ерекшелігі туралы зерттеулердің маңыздылығы сарапталып, өңірлік кәсіпорындар мысалында қарастырылады.

Кілт сөздер: HR, жасанды интеллект, компания, электрондық жүйе, рекрутинг, чатбот, бағдарлама.

А.Г.Бекишева*, К.Н.Бекетова

Кызылординский университет имени Коркыт Ата, Кызылорда, Республика Казахстан

Современные проблемы использования искусственного интеллекта на Казахстанской бирже труда

Аннотация. В статье рассматривается вопрос об использовании искусственного интеллекта в сфере HR, а также отмечается, что цифровизация данной сферы предполагает широкое использование искусственного интеллекта. Посредством анализа научных работ исследователей в статье систематизируется теория и история развития отрасли искусственного интеллекта.

Также в работе рассматриваются возможности и эффективность использования искусственного интеллекта. В результате исследования выявлено, что в сфере HR искусственный интеллект применяется в четырех основных категориях, при этом особенно высок спрос на услуги автоматического поиска, анализа и выбора резюме.

В статье дается анализ работы, проводимой в целях приглашения кандидатов на вакансии и выявления сотрудников, соответствующих предъявляемым требованиям, информирования о проведении ярмарки вакансий, на основе пилотных проектов, внедренных государством, с использованием информации на платформе онлайн-рекрутинга, таких как чат-бот, собеседование по Skype, Neadhunter,

В статье уделяется внимание специфике программ по искусственному интеллекту, внедренных на казахстанской бирже труда, преимуществам и недостаткам, изменениям, имеющим в связи с этим место в сфере HR. На примере региональных предприятий анализируется значимость исследований в этой области, в частности, наиболее эффективные в последние годы программы в области искусственного интеллекта, а именно: программа Deep Blue компании IBM, программа Alvin для вождения, программа говорящих роботов, разработанная Microsoft Application and Services Group, программы в области медицины, фармацевтики.

Ключевые слова: HR, искусственный интеллект, компания, электронная система, рекрутинг, чатбот, программа

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Information about the authors

Bekisheva A.G. – corresponding author, doctoral student of the educational program “State and local government”, Korkyt Ata Kyzylorda University, 69/1 T.Zhurgenov street, 120000, Kyzylorda, Kazakhstan

Beketova K.N. – candidate of economic sciences, associate professor of educational program “Economics and management”, Korkyt Ata Kyzylorda university, 18 Sh. Zhalgasbayev street, 120008, Kyzylorda, Kazakhstan.

Бекішева Ә.Г. – негізгі автор, «Мемлекеттік және жергілікті басқару» білім беру бағдарламасы докторанты, Қорқыт Ата атындағы Қызылорда университеті, Т.Жүргенов көшесі 69/1, 120000, Қызылорда, Қазақстан.

Бекетова Қ.Н. – э.ғ.к., «Экономика және басқару» білім беру бағдарламасының қауымдас-тырылған профессоры, Қорқыт Ата атындағы Қызылорда университеті, Ш.Жалғасбаев көшесі 18, 120008, Қызылорда, Қазақстан.

Бекишева А.Г. – корреспондент-автор, докторант образовательной программы «Государст-венное и местное управление», Кызылординский университет имени Коркыт Ата, улица Т.Жургенова 69/1, 120000, Кызылорда, Казахстан.

Бекетова К.Н. – к.э.н., доцент образовательной программы «Экономика и управление», Кызылординский университет имени Коркыт Ата, улица Ш.Жалгасбаева 18, 120008, Кызылорда, Казахстан.



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