

# ARTIFICIAL INTELLIGENCE AND CAREER DEVELOPMENT

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**Abstract** In modern life, we are inundated with modern technology that accompanies us at home and work. Technology makes our everyday life a lot easier, but at the same time, the rapid development of technology and artificial intelligence may cause fear among people. In our article, we focused on the impact of artificial intelligence on employees' career development. A few authors state that in the future, people will be pushed out of their jobs and replaced by robots. However, recent research shows that using artificial intelligence in human resource management does not lead to a decrease in the number of employees but rather encourages employees to educate for work positions with greater added value. In our paper, we will present some facts about artificial intelligence and break down the types of artificial intelligence. First, we will touch upon the tools based on artificial intelligence and continue by looking into the use of artificial intelligence in human resource management and the advantages of using artificial intelligence. In conclusion, the contribution of artificial intelligence to employee career development will be presented.

**Keywords:**  
human  
resources  
management,  
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intelligence,  
career  
development

## 1 Introduction

New technologies greatly impact employees' lives, work styles, ways of thinking, and perceptions of themselves and the world around them (Pogačar, 2017). It is predicted that in the future, multi-career development will necessarily cause the change of several professions in one's career (Šarotar Žižek & Mulej, 2019). It will also transform professions according to the current and future development of new technologies and robotization. Career development experts and psychologists are increasingly focusing on predicting how the work process will change due to the progress in intelligent technologies such as automatization, robotics, and artificial intelligence (Hirschi, 2018). This process will result in both positive and negative impacts on the workforce. The development of technologies may reduce or even eliminate several tedious, unsanitary, and unsafe work positions and, at the same time, create new well-paid work positions based on technology. This may offer opportunities for employers and encourage the creation of flexible and independent work processes. However, at the same time, one has to be aware that all of the progressive technologies may potentially cause the termination of work positions for numerous low and medium-qualified employees (Friedman, 2016). This may lead to even worse social inequality and an increase in low-paid employees without a considerable safety net (Lent, 2018). A recent study by Brookings Institute calls to attention that the increased use of artificial intelligence may have an even more damaging impact on the well-paid workforce, as it is a powerful tool. When used to fulfill tasks, it demands planning, learning, drawing conclusions, problem-solving, and predicting (Muro, Whiton, & Maxim, 2019).

Artificial intelligence will likely be part of the recruitment process as it already is in other parts of the world. The automatic recruitment system may reject up to 75% of CVs (curriculum vitae) before they are read by the human resource employee (Elmers, 2022). Artificial intelligence technologies drawing personal data from social network profiles and predicting the candidate's suitability for the advertised position have contributed to good work efficiency (Farokhmanesh, 2019). There are also automatic systems assisting in looking for employment, such as JobSeer. It matches the keywords describing skills in the CV to the skills sought in the job advertisement. Such systems may also evaluate the advertised work positions and suggest what skills should be developed or learned to increase the applicant's chances of getting hired

(JobSeer, 2021). What the future holds may be unknown, but artificial intelligence has great potential to change career development (Engel, 2019).

## 2 Artificial intelligence

Turing (Computing Machinery and Intelligence, 1950), also referred to as the father of computing, was the first to mention artificial intelligence and question the ability of machines to think. Stuart Russell and Peter Norviga (*Artificial Intelligence: A modern approach*, third. ed., 2010), authors of the leading artificial intelligence course book, divided the notion of artificial intelligence according to four characteristics. The first two are referred to as systems with a human approach. One is the system thinking like a human being, and the other is the system acting like a human being; the second pair are two systems with an ideal approach, the first being the system that thinks rationally and the second acting rationally. Artificial intelligence seeks solutions based on raw data and computing functions in its simplest form, while the expert system tries to imitate human intelligence.

Artificial intelligence (AI) may be divided into two broader categories, and the first is narrow artificial intelligence and the second artificial general intelligence. As a result of actual and hypothetical problems, these two categories may be supplemented by the third category, artificial superintelligence. The narrow AI uses the goal-oriented approach in tasks such as internet search, biometric recognition, and self-driving cars. The narrowly limited programming targets problem-solving and offers countless possibilities for choosing AI as a career path. General AI uses the approach in which the systems imitate human intelligence with the help of self-learning abilities. Such a system can think, analyze and respond to problems like humans. To make such a system work and to produce conscious machines, it is necessary to provide them with the full spectrum of cognitive skills, beliefs, and sensitivity. The implementation of general AI may be observed in science fiction stories. Artificial superintelligence is a theoretical algorithm of AI that can completely understand a human being. It also imitates human behavior and human intelligence. This may lead to self-aware and self-sufficient creations that may have the ability to exceed human abilities and skills. Because the impact of artificial superintelligence may be positive and extremely negative, the implementation of such systems is seriously regulated (Joshi, 2022).

## 2.1 Human resource management and artificial intelligence

Numerous companies invest profusely in information technology (IT) to enhance achievement and efficiency, which may lead to a competitive advantage. The same may be said for human resource management, using AI to manage time, costs, and productivity and avoid risk (Geetha & Bhanu, 2018). The use of AI in the system of human resource management may assist in the automatization of business procedures, and it may create operative, managing, strategic as well as organizational advantages, together with a good IT infrastructure, as shown in *Table 1* below (Shang & Seddon, 2002). However, the two expressions, artificial intelligence and automatization can be understood as having different meanings. Namely, AI involves the imitation of human decisions and functions of human intelligence, while automatization is just the shortening of a lengthy procedure (Nasila, 2019).

**Table 1: Benefit dimensions according to Shang and Seddon (2002)**

| Benefit dimensions:  | Benefit categories:                             |
|----------------------|-------------------------------------------------|
| Operational benefits | Cost reduction                                  |
|                      | Cycle time reduction                            |
|                      | Productivity improvement                        |
|                      | Data quality improvement                        |
|                      | Customer service improvement                    |
| Managerial benefits  | Better resource management                      |
|                      | Better decision making                          |
|                      | Better performance control                      |
| Strategic benefits   | Support current and future business growth plan |
|                      | Support business alliances                      |
|                      | Support business innovation                     |
|                      | Support cost leadership                         |

| Benefit dimensions:        | Benefit categories:                                                                                                                                                                                                                                                                                                                     |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | <ul style="list-style-type: none"> <li>Support product differentiation</li> <li>Support external linkages</li> <li>Enables worldwide expansion</li> <li>Enables e-business</li> </ul>                                                                                                                                                   |
| IT infrastructure benefits | <ul style="list-style-type: none"> <li>Increased business flexibility</li> <li>IT cost reduction</li> <li>Increased IT infrastructure capability</li> </ul>                                                                                                                                                                             |
| Organizational benefits    | <ul style="list-style-type: none"> <li>Support business organizational changes</li> <li>Facilitate business learning and broaden employee skills</li> <li>Empowerment</li> <li>Changed culture with a common vision</li> <li>Changed employee behavior with a shifted focus</li> <li>Better employee morale and satisfaction</li> </ul> |

Recent research has shown that some companies use AI tools to conduct and listen to the candidates' interview recordings to decide on the candidates that will be invited to the second interview. They also use several tools such as those for the distribution of tickets to the suitable categories of visitors and agents; platforms for reporting and analyzing; platforms for the description of work positions; platforms for the evaluation of employees, and virtual platforms for interviewing; platforms for virtual career fairs; platforms providing self-service help offered by talking robots; platforms used to encourage productivity and to manage talents. In addition, there are also learning platforms adapting to the needs for new knowledge and

simultaneously determining the needs based on the users' preferences (Sithambaram & Tajudeen, 2022).

## **2.2 Artificial intelligence at work position**

Various authors have defined AI slightly differently. However, all definitions have in common the statement that AI is a machine with the ability to carry out human tasks and think at the level of human intelligence (Rathi, 2018; Nasila, 2019). As early as the mid-eighties of the previous century, it was predicted that information technology would hugely impact the workforce market and employment. However, the prediction proved to be only partly correct (Vintar, 2019). In recent years it has been called to attention that there is a considerable shortage of adequately educated workforce in various fields of work, particularly technologically-oriented ones (Bavec, 2019). Digitalization brings changes in work styles in numerous new professions involving the maintenance and use of new technologies. Vintar (2019) predicts that AI may force numerous employees to seek a new line of work or even new qualifications. Microsoft research shows that the workforce tends to be much better prepared for multi-career work or even a new career than their employers' estimates (Microsoft, 2019). Studies have also shown that using AI in the work process does not decrease the number of employees.

On the contrary, it enables employees to seek additional skills and value to achieve higher productivity and a better balance between professional and private life (Sithambaram & Tajudeen, 2022). Microsoft's research (2019) also shows that the use of AI in the future may double the number of innovations and increase the productivity of employees. Human resource professionals and managers use AI to assist decision-making and strategic planning by searching internal and external data for better interpretation (Jia, Guo, Li, Li, & Chen, 2018). At the same time, the decision-making process becomes faster than before (Sithambaram & Tajudeen, 2022).

Recruiting was the first process in which numerous companies used artificial intelligence. This experience involved higher speed and more possibilities for the comparison of results. It also sped up the recruitment process, increased the human resource managers' productivity, and improved the overall experience of the applicants (Zeng, 2020). With the help of artificial intelligence, it is possible to

evaluate and, as a result, reject up to 75% of CVs (Elmers, 2022); it is also possible to analyze experience, skills, efficiency, and the level of employee fluctuation, and based on the data choose the best candidate. Not only does AI prove useful in the process of recruiting, but it also offers better possibilities in reporting, efficiency monitoring, talent management, and searching for supplements. AI is similarly used to measure individuals' values, discover their aspirations, detect dissatisfaction with the balance between their professional and private life, and determine who deserves better pay (Sindu, 2018). The level of remuneration adds value to companies and addresses the loyalty problem of talented employees (Ruby & Jayam, 2018). Microsoft's study (2019) suggests that up to 62% of company managers and employees believe that AI improves their performance in their present work position and reduces the number of repetitive tasks.

### **3 Employee career development and artificial intelligence**

A career is a work done by an individual during one's professional life (Werther & Keith, 1986). Traditionally it is considered to be a linear climb upwards in one or two companies and stable employment within the limits of qualifications or profession. Nowadays, it is considered a path controlled by each individual and adapted to one's aspirations and environment. The focus is on the individual entering the work market as a supplier. Therefore human resources should not be oriented only toward the company's needs but should also address the employee's needs. This should enable the employee to develop their potential in the long run (Dessler, 2003). Career development is considered to run in five stages, the first being the choice of profession, followed by finding employment, and the next three are the early career, mid and late career (Greenhaus & Gerard, 2000, p. 119). Career development is defined as an organized, formalized, and planned effort to balance the employee's needs and the company's demands to be able to work in a certain position. Companies use various tools and subsystems to develop a career, such as recruiting systems, remuneration and motivation systems, search systems, competence development systems, education systems, training systems, and promotion systems (Brečko, 2006, p. 37).

New concepts of digitalization are trying to connect people with machines in order to maintain this connection in the process of manual work and also in decision-making (Bavec, 2019, p. 31). The changes caused by digitalization demand people to

adapt their frame of thought, responsibility, relations, and perception of their role (Kovačič, 2019). So far, the studies have confirmed that the key factor for the successful implementation and use of digital technologies is a radical intervention in the existing institutions, their business models, processes, culture, and organizational structure. These are called third-order changes because they radically impact the nature of work, the number of work positions due to robotization and automatization, and the implementation of new responsibilities and new manners of work. As a result, numerous traditional professions, such as secretaries, archivists, and couriers, are under threat. It may be expected that in such professions, it will be necessary to repeatedly change the line of work or even to change the profession due to structural reorganization. At the same time, the employees will need additional knowledge and experience (Vintar, 2019). This will call for a supportive environment that will enable and encourage employees to develop their digital competence. There will also be a need for professionals who will share their knowledge with employees.

New technology makes it easier to monitor and choose suitable roles for employees (Rani, 2020). Nenad Šustanovac, the director of the Information Technology Association (Združenje za informatiko in tehnologijo), predicts that by 2030 the demand for IT professionals will have increased to one hundred thousand (Žorž, 2021). Numerous employees resent this need for additional knowledge. They fear the loss of employment and the increased work volume, or they fear not knowing what the changes will bring (Kovačič, 2017). The later studies proved these concerns irrelevant, as the changes frequently involved a decreased volume of work, and human work is still needed. New research even points out that new technologies and AI tools make the choice of career path easier as they determine their professional personality on their own. As a result, they may find an adapted progress plan in their field or start a new career (Grosso, Sazen, & Bosello, 2022), which may be of utmost importance in facing the increasingly changing and unpredictable work environment.

## **Conclusion**

Present-time technology may be encountered in almost every step we make. Technology facilitates our lives and allows us to devote time and energy to other activities. However, artificial expression intelligence causes more resistance in numerous people. The reason may be found in the early presentation of artificial



intelligence as a replacement for human beings who will ultimately take their place. However, research proves that artificial intelligence may bring numerous benefits that present a huge advantage for the employee and the employer.

For this reason, numerous companies lavishly invest in information technology as their competitive advantage, bringing success and efficiency. The use of IT also has advantages in human resource management as it reduces time and cost, increases productivity, and helps to avoid risks. However, in recent years there have been warnings of the lack of an adequately educated workforce with good technological skills. Several authors point out that at some point in the future, employees may need to find new professions or work in multiple careers if machines replace human beings. Contrary to this, the Microsoft study indicates that artificial intelligence allows employees to gain additional knowledge and value and have higher productivity. It makes it easier for them to balance their private and professional life. Artificial intelligence has also proved useful in human resource management, which is used as strategic planning and decision-making tool. In human resource development, there are several tools for evaluating the individual's value, detecting their aspirations and dissatisfaction with the balance between private and professional life, and deciding who deserves higher pay. There are also portals for employees that facilitate the choice of career path as they decide about their professional personality, find an adapted progress plan for themselves, or start a new career.

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