






# Innovative Careers Ahead: Adapting to New Occupations and Competencies in the Future Workforce

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**Abstract:** *The rapid evolution of technology, automation, and globalization is causing big changes in the workforce. This is making us think differently about jobs and skills. In the paper, we explore the new trends that are shaping the job market. We look at three important topics about the future of work. First, we try to predict what new jobs will appear and what will make them happen. Second, we study the skills that are becoming more important for doing well in workplaces that are changing. Lastly, we closely examine how humans and robots interact at work, looking at how much robots might replace humans and what that means for jobs. To do this, we analyzed articles published between 2018 and 2023. We found that adaptability, creativity, critical thinking, and being good with digital technology are very important skills during these big changes.*

## 1. INTRODUCTION

The world is on the crossover of a transformative era, where advances in technology and automation are reshaping the landscape of work and employment. As we navigate this evolving terrain, it becomes crucial to explore the emergence of new occupations and the competencies that will define the future workforce. This paper aims to address two fundamental questions: What new occupations will develop in the future? What will be the new competencies required of workers?

By addressing these two essential questions, this paper aims to shed light on the transformative changes happening in the world of work. The insights gained from this exploration will enable policymakers, educators, and individuals to make informed decisions and develop strategies to navigate the future job market successfully. As we embrace the challenges and opportunities of new occupations and competencies, we can shape a future workforce that is resilient, adaptable, and equipped to thrive in an era of technological advancements and automation.

This paper is grounded in a thorough and rigorous literature review conducted using established academic databases, including Google Scholar and SSRN. The search strategy employed focused on relevant keywords such as "Future Competencies," "Future Occupation," and "Human vs. Robot".

To ensure the currency of the information, only articles published within the timeframe of 2018 to 2023 were considered for inclusion in this review. By utilizing these reputable sources and a targeted selection process, we aim to provide an up-to-date and comprehensive examination of the subject matter.

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## 2. OCCUPATIONS OF THE FUTURE

The increasing use of automation, artificial intelligence, and other technologies indicates that the role of humans in the economy will drastically diminish, leading to the elimination of millions of jobs. COVID-19 in 2020 has already accelerated this effect and is likely to further expedite and potentially establish digitization in certain areas permanently. However, while these technologies will eliminate some jobs, they will also create many others. Governments, companies, and individuals need to understand these changes as they plan for the future (Strack et al., 2021, p. 4).

Modern employment trends suggest that employers are equally, if not more, interested in an individual's behavioral traits and experiences in a specific field rather than formal education. Therefore, it is not necessary to strictly seek a new job within the framework of one's acquired education. Instead, a broader perspective can be considered, and one can choose a profession that offers greater prospects and a more secure future based on contemporary guidelines. Futurists are attempting to determine which jobs will emerge in the next 20 years, estimating that approximately 60% of jobs have not yet been discovered (Poklici prihodnosti, 2023).

Researchers predict that in the next twenty years, a plethora of occupations will emerge that are currently unknown but for which market needs are slowly beginning to manifest. These types of professions are not only related to the rapid development and adaptation of technology in everyday life and systems but also involve the growing demand for new experts in areas related to interpersonal relationships, diverse generational needs, and changes in demographic trends. Some new occupations have already gained traction, yet there is still no vertical educational plan for them. Perhaps one of the essential characteristics of these new occupations and the new job market is precisely that the initial education serves as a starting point, upon which individuals build their dynamic careers through continuous learning, complementing, upgrading, and exchanging knowledge, experiences, and personal plans. (Žnidaršič, 2021).

Due to job automation and the global recession, workers have been losing their jobs at a faster rate than in previous years. The current shift in the division of labor among humans, machines, and algorithms could potentially replace 85 million jobs worldwide in the next five years, while simultaneously creating 97 million new jobs that are better adapted to this new division of labor. Companies expect to replace approximately 6% of their entire workforce by 2025, with every second worker needing to be retrained. Those who remain in their current positions will need to update 40% of their knowledge to adapt to the changing job market. By 2025, organizations aim to train over 70% of their employees to ensure a smooth transition to future job roles. On average, workers will be required from 2 weeks to 5 months to obtain the new knowledge and skills necessary for transitioning into new jobs (World Wide Economics, 2020).

Based on different authors, here are some examples of new professions that are already sought-after and established in the market:

1. Climate Solutions Advisor for Seniors. A Climate Solutions Advisor for Seniors will have knowledge of the health effects of weather events and will be able to design creative strategies specifically tailored to the needs of different individuals and communities. They will possess excellent communication skills for working with the government and older adults, as well as empathy and an understanding of the needs of seniors. They will also have technological knowledge that enables them to design and provide advice on monitoring and control systems. (Browse the 100 jobs of the future, 2023).

2. Genetic Specialist. Gene editing is a controversial topic as it allows us to play a role somewhat like a God. However, apart from choosing the eye color or height of our newborn, there are also medical applications. With the power of gene editing and the use of genetic technologies, we will be able to reduce the risk of serious health issues and significantly improve the quality of life for many people ([Best 14 jobs of the future: the most in-demand careers, 2022](#)).
3. Digital Archaeologist: Digital archaeologists use 3D technology for the virtual preservation and conservation of cultural heritage, especially in regions where the destruction of cultural objects is present. They use affordable 3D cameras to capture images, which are then stored in a web-based database ([Žnidaršič, 2021](#)).
4. 3D Printing Specialist: Experts in 3D printing are involved in the development of 3D printing technology and the creation of three-dimensional objects. They cover a wide range of tasks, including technology development, adaptation to different media and materials, and technology promotion ([Žnidaršič, 2021](#)).
5. Idea Manager: An idea manager connects technical developers, users, and clients and is responsible for generating, developing, and implementing innovative ideas. They also facilitate the acquisition of new ideas from various sources, form development teams, and handle the market presentation and launch of products ([Žnidaršič, 2021](#)).
6. Public Relations Manager: A public relations manager is responsible for creating and maintaining a favorable public image of an employer or client. Their tasks include communicating programs, achievements, and positions, responding to media inquiries, organizing press conferences, and managing crisis communications ([Upravljalca družbenih medijev opis poklica in aktualna dela, 2023](#); [Public Relations Manager Job Description, \(2023\)](#)).
7. Data Scientist: A data scientist deals with processing massive amounts of data and manipulating and segmenting it according to clients' needs. They use processed data for process optimization, trend forecasting, searching specific information online, and other similar tasks ([Žnidaršič, 2021](#)).
8. Social Gerontologist: Social gerontologists are human services professionals who advocate for older adults. They address a range of common social, health, personal, and psychological issues faced by older adults. This includes aging and related media stereotypes and workplace discrimination. It encompasses the abuse and neglect experienced by older adults in assisted living facilities. It also includes common mental and physical health issues such as dementia, depression, and disability. Social gerontologists strive to enhance the independence and productivity of older adults. They also help combat prevalent media and societal stereotypes about older adults, such as the misconception that older adults are slow and unable to learn new things. Due to these negative stereotypes, employers tend to avoid hiring older adults, and if they do, they are more likely to lay off an older employee instead of a younger one. Social gerontologists perform a wide range of tasks depending on the job and workplace. This is because there are many ways to enhance the quality of life for older adults and help others understand and appreciate older adults. For example, social gerontologists often advocate for older adults by helping them understand and complete challenging paperwork such as financial, insurance, or retirement forms. They assist older adults in finding health-care services and community resources ([What is social gerontology, 2023](#)).
9. Drone Operator: Drones can help us safely deliver medical supplies, easily assess buildings, and revolutionize delivery services. Drones are becoming part of the social fabric and will become more prevalent in the next decade ([Best 14 Jobs of the Future: The Most In-Demand Careers, 2022](#)).
10. Others such as: Artificial Intelligence (AI) Ethicist, Virtual Reality (VR) Designer, Blockchain Developer, Cybersecurity Analyst, Sustainability Manager, etc.

### 3. SKILLS OF THE FUTURE

In a rapidly changing world, there is also a growing demand for various skills. In recent years, companies have increasingly started to reshape and upgrade their expectations of employees. The better employee of the future (and today) is the one who is more adaptable, learns broadly, and quickly acquires new skills (Makar, 2020).

The Fourth Industrial Revolution, based on digitalization, demands new knowledge. It introduces new jobs and transforms existing ones. It involves large amounts of data obtained in an extremely short time and smart systems that will significantly change the economy. It will primarily require individuals to interactively solve problems, possess organizational skills, think "out of the box," have a clear focus, empathy, and an exceptional ability to adapt quickly to innovations. Personal qualities such as enthusiasm, passion, and energy with which they work will also become important. Flexibility will be necessary in all stages and processes of work. Those who "fall asleep" in the workplace and cannot keep up with the changes will be automatically eliminated by the job market. Their knowledge and competencies will not be competitive (Boštjančič, 2023).

Therefore, it is necessary to invest more in educating people about what digital transformation brings to individuals, companies, and society. Regarding older employees, digital transformation presented an excellent example from which we can learn a lot. The company wanted to create a phone for the elderly but realized that the elderly do not need a different phone; they just need different instructions (Žedanes moramo krepiti kompetence vseh zaposlenih, da bomo pripravljene na delo v prihodnje, 2021).

In the future, some of the competencies mentioned by various authors are:

1. Self-management is important for successfully performing work tasks. This competency refers to adhering to one's values, expressing opinions, keeping promises, establishing work ethics, showing interest, and being self-disciplined. Self-management is also connected to active learning, a competency that ensures the timeliness and depth of our knowledge, and learning strategies that enable us to adapt better to different job positions. Resilience is also crucial in managing one's work behaviors, as it relates to personal and professional adaptability, flexibility in stressful situations, and lifelong learning processes (Makar, 2020).
2. Emotional intelligence. Your ability to be aware of, control, and express your emotions, as well as be aware of others' emotions, describes your emotional intelligence. If you have empathy, and integrity, and collaborate well with others, you demonstrate good emotional intelligence. The human ability to connect with others is not easily replaceable by machines, which is why those with high emotional intelligence will be in demand (The 10 vital skills you will need for the future of work, 2022).
3. Digital literacy is a skill that becomes increasingly important in the workplace with technological advancements. Being digitally literate means understanding the terminology for social networks and mobile applications. Employers may prefer employees who are digitally literate and proficient in technology (Birt, 2022).
4. Cultural literacy. In a globalized world, it is essential to have a good understanding of cultural differences in language, generation, race, gender, sexual orientation, religion, or political orientation. This understanding helps leaders, supports team building, and contributes to forming better international partnerships (Talin, 2022).
5. Negotiation. People in technical professions will soon be expected to demonstrate greater interpersonal skills, so being able to negotiate with colleagues, managers, clients, and teams will be crucial (10 Skills You Need for Future Employment, 2023).

6. Computational thinking. Computational thinking primarily involves seeking deeper truths and questioning established facts. Such thinking is highly valued in the business world as it can lead to improvements, new discoveries, or positive changes. Individuals who always seek to learn more and are not satisfied with simple explanations are highly appreciated in the business world (*Kompetence prihodnosti*, 2023).
7. Accepting and facing challenges. Employers seek individuals who are willing to take on new challenges, whether it's learning a new language, transitioning to a different computer program, or changing career fields. Don't be afraid to accept new challenges - courage will serve you well in the future (*Kompetence prihodnosti - jih že imate?*, 2020).

#### 4. HUMAN VS. ROBOT OF THE FUTURE

Robots will replace humans, but not completely. According to *Želko (2020)*, 17 years ago, 90% of all robots were primarily found in the automotive industry. *Sarkar's (2020)* study suggests that in the next 11 years, China alone will have 14 million robots in operation. However, this is not the case at present.

*Želko (2020)* categorizes robots based on their type of operation and appearance, including humanoid robots that resemble humans, autonomous robots, teleoperated robots, and lesser-known augmentative robots, which replace limbs and play a significant role in medicine, rapidly advancing in development. Most robots we use can be found in our homes, such as washing machines, vacuum cleaners, call center assistants, and dryers, among others. Robotics is progressing notably in the medical field, assisting doctors with organ enlargements, prosthetic limbs, and receptor robots, while high-tech machines are being developed in the industrial sector. Additionally, robotics is increasingly being utilized in education.

Artificial intelligence (AI) is a significant area of development, as described by *Blažič (2022)*, and it has rapidly made its way into classrooms, providing tools such as translators, math assistants, and digital aids, revolutionizing the learning process.

*Doyle (2021)* states in an article that by 2030, every third worker in the United States will delegate the majority or at least some of today's tasks to robots. Many existing jobs will even disappear. Robots currently serve as valuable assistants, easing our workload and saving time on household chores and similar tasks. However, it is evident that robots cannot fully replace our work. Automation will undoubtedly replace certain jobs, but no robot can substitute for human thinking, empathy, and energy, as *Sarkar (2020)* theoretically confirmed. Robots will take on labor-intensive tasks, increasing the value and appreciation of human work. Numerous jobs involving empathy will remain in the hands of humans, as they are difficult to control, require creativity, and involve caring for the environment, among other aspects. Human interaction is particularly crucial in healthcare, where warmth and kind words hold significant importance and will remain essential in our lives.

Preparing for automation and robotization requires continuous learning, adaptability to new situations, acquiring new skills, and managing information without becoming overly stressed.

## 5. DISCUSSION, ANSWERING THE RESEARCH QUESTIONS

*The first research question is What new occupations will emerge in the future?*

According to [Strack et al. \(2021, p. 4\)](#), due to increasing automation, the use of artificial intelligence, and technology, the role of humans in the future will diminish, resulting in the elimination of millions of jobs.

Examples of these professions, listed by [Žnidaršič \(2021\)](#), include climate solutions advisor for seniors, genetics expert, 3D printing specialist, digital archaeologist, idea manager, public relations manager, data scientist, social media manager, social gerontologist, and drone operator.

According to the [World Economic Forum \(2020\)](#), it is projected that 97 million new jobs could emerge worldwide in the next five years. Companies expect to replace approximately 6% of the total workforce by 2025.

*The second research question is What will be the new competencies required of workers?*

[Ravindran \(2023\)](#) explains in his article that foreign language proficiency will be crucial in the future. According to a study by Common Sense Advisory, companies can lose up to \$2.3 million per year due to language barriers. Additionally, up to 60% of cross-border business transactions are estimated to fail due to language barriers. Poor communication also negatively impacts employee productivity. [Ravindran \(2023\)](#) mentions a report by the McKinsey Global Institute, which claims that upskilling and reskilling employees could add \$6.5 trillion to global GDP by 2030. In his article "The Future of Business Success in the Digital Era," [Chukwube \(2023\)](#) emphasizes the importance of a skilled and competent workforce. According to the World Economic Forum's estimation, by 2025, the redistribution of work between humans and machines may lead to the migration of 85 million jobs.

Due to the rapid development of the world, there is also a growing need for various types of professionals. Companies have significantly reshaped and upgraded their expectations of employees in recent years. It is crucial for companies to recognize the importance of a talented workforce. By investing in their employees, companies can develop a qualified and motivated workforce capable of adapting and keeping pace with emerging technologies and market trends.

## 6. CONCLUSION

The future of work is undergoing significant changes driven by digitalization, automation, and emerging technologies. This shift necessitates a new set of competencies for workers to thrive in the evolving landscape. The research has highlighted the importance of adaptability to constant change, emotional intelligence, digital literacy, self-management skills, effective negotiation abilities, and cultural literacy as key competencies for future workers.

Experts predict a diminishing role for humans, resulting in the elimination of millions of jobs ([Strack et al., 2021](#)). Futurists estimate that approximately 60% of future jobs have not yet been discovered and will emerge in the next 20 years, particularly in areas related to technology development, interpersonal relationships, generational needs, and demographic shifts

(Poklici prihodnosti, 2023). Examples of potential new professions include climate solutions advisors, genetics experts, 3D printing specialists, digital archaeologists, and social media managers (Žnidaršič, 2021). The World Economic Forum projects the emergence of 97 million new jobs globally within the next five years (World Economic Forum, 2020).

The fourth industrial revolution, characterized by digitalization and new knowledge, will demand specific skills (Boštjančič, 2023). Emotional intelligence, digital literacy, self-management skills, effective negotiation abilities, and cultural literacy are identified as key competencies (Birt, 2022; Talin, 2022; Makar, 2020). Additionally, foreign language proficiency is emphasized as crucial, considering the financial and communication impacts of language barriers (Ravindran, 2023). The upskilling and reskilling of employees are seen as vital investments, with the potential to contribute trillions to global GDP and mitigate job migration (Ravindran, 2023; Chukwube, 2023; World Economic Forum, 2020).

Given the rapid development of the world, companies must recognize the importance of a talented and adaptable workforce. By investing in their employees' skills and competencies, companies can cultivate a qualified and motivated workforce capable of navigating emerging technologies and market trends (Chukwube, 2023). The evolving landscape calls for reshaped expectations and upgraded skills from employees, ensuring they can thrive in the changing job market (World Economic Forum, 2020).

The significance of foreign language proficiency has emerged, as language barriers can have substantial financial implications for businesses. Upskilling and reskilling initiatives are seen as crucial for individuals and organizations to navigate the changing job market successfully. While technological advancements offer opportunities for economic growth, they also raise concerns about potential job displacement.

The future of work necessitates a comprehensive approach that integrates technical skills with fundamental human attributes, underscoring the significance of continual learning, adaptability, and adeptness in navigating the intricacies of a swiftly evolving global landscape. Furthermore, we will also have to get used to working together with robots in the same space.

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