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# THE EFFECT OF TECHNOLOGY EVOLUTION ON THE FUTURE OF JOBS

Review  
Article

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## **Abstract**

*Organisations are integrating Artificial Intelligence applications and automation technologies into their businesses to gain benefits like cost reduction, long-term automation strategy development and efficiency improvement without putting less pressure on human resources and to enhance competitiveness and sustainability. The current situation has prompted vague futurity for the workforce and speeded up the future of jobs arrival. It has created fears of modern technologies causing job replacement or loss and a conspicuous increase in unemployment. This article investigates the effect of adopting AI application technologies and automation in the future of jobs. The study confronts the questions below: Will human resource management hire machines instead of people? How will technology affect the tasks and job roles? What is the impact of automation on employees? A set of previous studies has been reviewed. The results of these studies show many possible scenarios for the future of jobs: (1) routine jobs and those requiring lower skills will disappear and will be replaced by technologies; (2) a new structure will be developed for job roles and tasks that need more human-machine integration; (3) an advanced job opportunity will appear, especially the positions that require more creativity and highly technical skills.*

## INTRODUCTION

Artificial Intelligence technology will have a strong impact on humans' lives soon. Previous studies have indicated that Artificial intelligence (AI) is not a new domain; early scientists inserted AI as an industry along with hardware development in the 1980s. AI expression started to expand globally in 1995 after the appearance of the book "Artificial Intelligence: A Modern Approach" written by Stuart J. Russell and Peter Norvig (Hmoud & Laszlo, 2019). Organisations began to utilise AI robotics production to automate complex and tedious job tasks. Then IBM developed "Deep Blue" software as well as phone speech synthesis technology (Lucci & Kopec 2016; Hmoud & Laszlo, 2019). Undoubtedly modern technologies have an impact on humans' life by making it easier, convenient, improving living standards, decreasing the need for physical humans in tedious work and dangerous jobs (Ivanov, Kuyumdzhev & Webster, 2020; Brynjolfsson & McAfee, 2014; Talwar, Wells, Whittington, Koury & Romero, 2017; Drexler, 2013; El-Homsi, 2018). In the personal domain, there are various smart digital assistant applications that make life easier, like Apple Siri, Samsung Bixby, Amazon Alexa, Google Assistant, and other digital assistants (Purwanto, Kuswandi & Fatmah, 2020). Meanwhile, modern technologies will change employee roles and tasks; they are also likely to replace humans by creating new job roles whilst other jobs will disappear. Routine tasks will be replaced, and jobs requiring lower skills are potentially going to be automated like that of a cashier, assistant, and so on (Makarius, Mukherjee, Fox & Fox, 2020; El-Homsi, 2018). It is argued that machines can act the same way as humans; meanwhile, others hesitate that highly sophisticated behaviour, such as love, creativity or morality, will always be beyond the capabilities of machines (Negnevitsky, 2005; Novakova, 2020). According to Ghosh, Daugherty, Wilson and Burden (2019), around 80% of big companies adopted some Artificial Intelligence technologies in their business in the last five years. Artificial intelligence is available to almost every organisational function and is likely to become an important part of the future of jobs (Huang & Rust, 2018; Wilson, Daugherty, & Davenport, 2019). Companies integrate AI technologies into their business willing to have their benefits such as cost reduction, developing long-term automation strategies, improving efficiency, saving time and effort,

decreasing errors, improving strategic outcomes, causing less pressure on human resources, eliminating human bias, automating processes, enhancing competitiveness and sustainability (Davenport & Kirby, 2015; Davenport, Guha, Grewal, & Bressgott, 2020; Paschen, Pitt, & Kietzmann, 2020; Hmoud & Laszlo, 2019; Syed et al., 2020; Makarius et al., 2020). Besides, the current COVID-19 pandemic crisis enforces companies to increase modern technology adoption (Makarius et al., 2020). For instance, 84% of business leaders are committed to swiftly digitalise operational processes, including remote work, with the probability to move 44% of their employees to work remotely (Schwab & Zahidi, 2020). Furthermore, Robots and chatbots have been utilised in customer communication and reception to provide safety for workers who may interact in complex cases only (Sigala, 2020). Although AI technologies have great benefits, it is not always the case (Canhoto & Clear, 2020). According to the Deloitte (2017) survey, 47% of the senior managers who were occupied in 152 AI Projects are facing challenges with combining AI technologies with employees, systems, structure and processes. Similarly, a quote from Bill Gates "whereby automating an inefficient process merely magnifies its inefficiency," concludes that to achieve AI maximum benefit, it is essential to requalify the workers, provide them with enough training and information to be able to interact and integrate with the new technologies. Also, the companies should be prepared for the transformation through redesigning their process, structure and systems based on new technology needs (Gliksion & Woolley, 2020; Lichtenthaler, 2018; Lacity, Willcocks & Craig, 2016; Syed et al., 2020; Makarius et al., 2020). This article aims to investigate the effect of adopting AI application technologies and automation on the future of jobs. The present article raises the questions below: Will human resource management hire machines instead of humans? How will technology affect the tasks and job roles? What is the impact of automation on employees? The article is organised into six sections which are: the subsequent section is the research methodology, section three reviews the previous literature in regards to Human Resource Management (HRM) as well as its responsibility among technologies adoptions. Section four presents the variety of applications in the evolution of technology. Section five mentions the effect of technologies on the future of jobs. The last part presents the conclusion.

## **METHODOLOGY**

This study aims to investigate the effect of using AI application technologies and automation in the future of jobs. A collection of articles were reviewed and discussed to identify and achieve the aim of this paper by using books, reports and multiple databases like EBSCO Discovery Service (UDiscover), Scopus electronic databases, Google Scholar ProQuest, Elsevier, Web of Science, WEF (World Economic Forum, 2020) reports and ScienceDirect. The research was conducted in keywords, abstracts, titles, and full-text fields to expand the literature review. It resulted in a large number of articles, but merely the most relevant ones were used. The present article is unconstrained in its time frame. Many articles and reports were selected to be reviewed for studies on the effect of modern technologies and automation on the future of jobs. The reviewed articles were confined because of the access limitations to full text in the papers found.

## **HUMAN RESOURCE MANAGEMENT RESPONSIBILITY AMONG TECHNOLOGY ADOPTIONS**

This section is allocated for answering the research question - Will human resource management (HRM) hire machines instead of humans? By reviewing previous literature in this field, in the beginning, an explanation was provided in regards to the HRM development, their importance and how technologies affected them. After that, a discussion mentioned the HRM roles in adopting technologies and hiring machines vs employees. It is crucial for companies to sufficiently understand their Human Resource Management development needs as Human resources management (HRM) considers them as a changing field. HRM should be recognised as a "moving target" that allows companies to customise the possible solutions based on needs, depending on human resources, upgraded technology, and the new strategies are proposed for the companies (Attafar & Teimouri, 2009). Hörte and Lindberg (1994) prominently mention that technological growth and Human Resource Management (HRM) development affected performance by defining three categories: the first is technological upgrading. The second is the development of the human resources of the company and the organisational changes. The third one is a combination of advanced technology and human resource management. HRM has evolved over time. Various factors have affected Human Resources Management (HRM) with the information technology revolution. Human

resource management practices, which began with the early invention of computers, used electronic means in raising the efficiency of the process (Hmoud & Várallyai, 2020). Human resources are essential pillars for the growth and prosperity of nations. Schultz (1961) refers to individuals who have gained skills, experience, and knowledge as a sort of capital in "the human capital theory" as well as focused on the need for a new path to develop and manage such valued assets. Companies are in competition for gaining a highly skilled and qualified human resource. Within organisations, human resources represent a major factor for competitive advantage, growth, and innovation (Hmoud & Laszlo, 2019). Moreover, Bontis, Dragonetti, Jacobsen and Roos (1999) determine human capital as "The human elements of the organisation are those that are capable of learning, changing, innovating and providing the creative thrust, which, if properly motivated, can ensure the long-term survival of the organisation". The definition focuses on the value of creativity and innovation in human capital development and how it could be the source of sustainability and long-term survival (Abujudeh, 2019). Numerous researchers argue that the industry 4.0 revolution has changed the economics and HRM mostly. Rising technology evolution, such as Artificial Intelligence (AI) and automation, has accelerated the advent of the future of jobs (Hmoud & Várallyai, 2020). Moreover, the current COVID-19 pandemic urges companies to adopt technologies to sustain and survive. HRM has integrated AI applications in the process to improve quality and efficiency, reduce the cost of HR, and increase profitability (Hmoud & Várallyai, 2020). These technologies include Digital assistants' interactive features like a chatbot, social media, mobile applications, inventory management, bulletin boards, automated banking, feedback form, search engines, calendar and appointment management, text message sending, phone-call making, automation, process automation, car navigation, trade conversations, smart HR systems 4.0, and health monitoring, etc. (Hmoud & Laszlo, 2019; Sivathanu & Pillai, 2018; Massey & Levy, 1999; McMillan, 1998; Brill, Munoz & Miller, 2019; Moar, 2019; Purwanto et al., 2020). Furthermore, World Economic Forum announced in their "Future of Jobs report 2020" that by 2025, jobs and tasks would change due to technology adoption; moreover, about 43% of the surveyed businesses mentioned that they were willing to reduce their workforce due to technology integration. It is also expected that the time spent on work tasks by humans will be equivalent to time spent by machines. Human resource experts believe AI-based solutions remain vague and require more comprehensive examinations and research. Meanwhile, many AI-based solutions have

expanded within companies and HR managers. HR utilised AI applications in the recruitment procedure where these systems automated the administrative process instead of humans, and it helped HR to select the applicants and eliminate human biases, which result in a high-quality hiring method (Hmoud & Laszlo 2019; Hmoud & Várallyai, 2020). There must be technical readiness and technological compatibility within the companies alongside professional human resource experts to reach a successful AI adoption (Low, Chen & Wu, 2011; Zhu, Kraemer & Xu, 2006). HR plays a vital role in maintaining a healthy and safe business environment to attempt better productivity, motivation and aims to intend a significant quality of work-life employees "which means to gain a balance between a personal and work life and stress level" (Noe, Hollenbeck, Gerhart & Wright, 2017; Meteab, Sadiq & Hadrawi, 2020). HR managers with other managers must provide more meetings, training to workers and integrate them with machines in a socio-technical environment, especially when they present the adopted automation technologies to organisations and integrate them with machines in a socio-technical environment. The employees need to understand the new changes fully. Furthermore, HR leaders must focus on the benefits of the introduced technologies for the employees as it will save their time and motivate them to perform creative tasks (Ivanov et al., 2020; Schlögl, Postulka, Bernsteiner, & Ploder, 2019). Previous research mentioned that providing a healthy and convenient work environment would benefit both workers and managers (Mathews & Khann, 2016). Hmoud & Laszlo (2019) mention that evolved intelligence will be expanded and provide successful, efficient outcomes for organisations; therefore, AI technologies will replace routine work and constantly vanish. Also, routine work will continuously be replaced by AI applications. Hiring modern technologies like (AI, automation, or robotic) will create pressure on both managers and human resources, urging them to set advanced skills, knowledge, capabilities, modify job roles and generate new positions to comply with the current situation. From the employee's perspective, this will increase their fear of losing their work (Meteab et al., 2020; Ivanov et al., 2020; Schlögl et al., 2019; Agrawal, Gans, & Goldfarb, 2017). Workers need to decrease the chance of losing their jobs by reskilling and developing their capabilities; to acquire the most demanded skills such as problem-solving, critical thinking, stress tolerance, flexibility and self-management, active learning, and improving the ability to deal with technologies (Schwab & Zahidi, 2020; Novakova, 2020; Makarius et al., 2020). For instance, in the COVID-19 pandemic, workers have been divided into three groups, the first one is "essential workers" like

health employees and shop assistants; the second one "remote workers" like teachers and customer service representatives; and the last one "displaced workers" such as Hospitality and Tourism, travel employees. All three worker categories needed reskilling, more flexibility, and upskilling agenda (Schwab & Zahidi, 2020). Consequently, uniting leaders and employees' efforts to powerfully build a Socio-Technical work environment by integrating AI in efficient socialisation will achieve growth alongside machines, not against them.

## VARIETY APPLICATIONS IN TECHNOLOGY EVOLUTION

In the last few decades, modern technology adoptions increased in the business environment aiming to improve their productivity, reduce costs and decrease the workforce. Also, it becomes important for companies to sustain and remain competitive, especially recently, because of the fall in robots' prices and the potential increase in the cost of the workforce (Novakova, 2020). Modern technologies include a massive range of examples like artificial intelligence, automation systems, digital assistant applications, IT applications, industrial robots, service and social robots, chatbots, etc. These applications are used in numerous businesses comprising manufacturing production, customer service, process automation, financial services, healthcare, agriculture, banks, automated border control, tourism, ordinary life, etc. (Ivanov et al., 2020; Purwanto, et al., 2020; Makarius et al., 2020). The literature shows a variety of research on AI and modern technologies; this paper will review some of them. Russel and Norvig defined AI as "the art of creating machines that perform functions that require intelligence when performed by people" (Nilsson, 1996). Makarius et al. (2020) mention that it is the companies' responsibility to establish a socio-technical capital, including the integration of AI and employees into the organisations to support workers to cope with their fears of being replaced by AI. Many like Makarius et al. (2020) Huang and Rust (2018) conclude in their research that firms should consider dividing the tasks between AI and workers instead of replacing them, and they should create human-machine integrated service strategies, and policymakers needed to examine the effect of AI in the economy. They also mention that advanced AI might cause threats for employees. In their study, Hmoud and Laszlo (2019) state that routine jobs would be replaced by AI and then might disappear. Furthermore, they explain that AI would improve the production and the outcomes of the hiring process as AI could take over time-consuming tasks such as sourcing, screening applicants, and eliminate human biases. Another

factor is indicated by László (2020), which includes involving the customer in the decision-making mechanism to have feedback if they are willing to interact with intelligent systems within a secure and trustworthy environment. Purwanto et al. (2020) find that digital assistants' users require two-way interactions and privacy protection of their personal data, which can presume the users' needs. Also, digital assistants will be able to think and act like humans. Digital assistants will provide services, such as mobile applications, chatbots, social media, feedback form, home automation, text message sending, phone-call making, engine search, and others (Brill et al., 2019; Moar, 2019). For example, Amazon Alexa, Samsung Bixby, Google Assistant, Apple Siri, etc. They can work in real-time, provide accurate results and reliability that may improve customer satisfaction (Brill et al., 2019). Meteab et al. (2020) claim that the adoption of technological applications like IT applications has caused improvement in productivity, saved worker time, increased efficiency, and created job opportunities. Ivanov et al. (2020) point out that young workers are more optimistic and flexible to reskill themselves for automation in the workplace. Older workers are less flexible, and they find it hard to handle it. Parasuraman & Riley (2017) define automation "as the execution by a machine agent (usually a computer) of a function that was previously carried out by a human". Automation evolution is transforming the firms' structure and the workers' roles, and can be considered as a production process as workers are becoming redundant due to machines' adoption growth. The automation rate is different among professions. Manual jobs are estimated to be the most automated, while high managerial jobs and experts will be the lowest ones (Novakova, 2020). Furthermore, Vermeulen, Kesselhut, Pyka and Saviotti, (2018) indicate that after they researched wide macro-level scenarios on employment, they found that humanity is confronting "the usual structural change" rather than the "end of work". Thus, instead of considering only job losses to modern technologies, new job opportunities will be created. In their study, Parschau and Hauge (2020) find that the effect of automation on unemployment in the apparel industry in South Africa has been negligible, and it is estimated to remain the same. They further state that many industries and countries face various obstacles to adopting automation technologies, especially developing countries. In their research, Camiña, Díaz-Chao and Torrent-Sellens (2020) examine the relation of automation technologies on productivity and employment by testing 5511 Spanish industrial companies. Their result shows the need to apply new management strategies depending on data-driven decision-making and create policies that support automation skills. They also notice growth

in productivity of each real work hour. Nevertheless, the analysed technology frequency was less than 50% in companies. Moreover, industrial employment declined. In conclusion, organisations need to redesign their structure, reskill the employees, establish new policies fitting with the change, create a human-machine environment, and consider the unemployment effect to maximise the benefit of modern technologies. For detailed information, see Table 1.

### TECHNOLOGIES EFFECT IN THE FUTURE OF JOBS

The disruptions in the labour market due to technological evolution are not brand-new. The first fully automated process was an automatic flour mill (Andreoni & Anzolin, 2019) back in 1785. According to Allen (2009) and Manyika et al. (2017b) Luddite protests in the 19th century occurred when a textile company in Great Britain introduced machines to the company, filling the employees with fear about becoming redundant. Consequently, they started to destroy the machines. However, the literature provides supportive evidence of creating new job opportunities more than the replaced one (Manyika et al., 2017b; Muro, Maxim & Whiton, 2019). For instance, the period after the 1980s with the adoption of the computer in companies created many job opportunities (Novakova, 2020). Schwab and Zahidi (2020) define the global shift to the future of work: "an ever-expanding cohort of new technologies, by new sectors and markets, by global economic systems that are more interconnected than in any other point in history, and by information that travels fast and spreads wide". The definition emphasises the value of understanding the technologies, market, economic systems and their impact on changing work in the near future. A significant volume of research has been written about the fear of automation and its impact on job loss and unemployment (Makarius et al., 2020; Meteab et al., 2020; Novakova, 2020; Parschau & Hauge 2020; Camiña et al., 2020; Huang & Rust, 2018; Vermeulen et al. 2018; Hmoud & Laszlo, 2019; Frey & Osborne, 2017). Several articles indicate that developing countries are more likely to face more job losses (Parschau & Hauge, 2020; Halal, Kolber, Davies & Global, 2017; Gabriel, 2016), especially manufacturing jobs; because of a massive number of workers in the manufacturing sector (Manyika et al., 2017a; Parschau & Hauge, 2020). However, they affect not only the manufacturing sectors but also the area of services (Novakova, 2020). For example, Robots and chatbots have been utilised in customer communication and reception to provide safety for workers who may interact in complex cases only

(Sigala, 2020). Plus, Syed et al. (2020) indicate that the core of Robotic Process Automation (bots) is to improve service production and operational efficiency. Frey and Osborne (2017) explore an automation effect on job replacement. They have tested 702 occupations in the US labour market; they mentioned that highly skilled jobs were less likely to be automated. Novakova (2020) points to manual and routine jobs estimated to be the most automated while the high-level managerial jobs and experts will be the less likely automated. In addition, Makarius et al. (2020) mention an association between the higher automation of jobs and the lower human skill level that can easily be substituted. The results of Ivanov et al. (2020) show that fear of automation was negatively associated with professionalism. They point out that young workers are more optimistic and flexible to reskill themselves for automation in the workplace, while older workers are less flexible, and they find it hard to handle it. Some studies state that routine jobs would be replaced by AI and then might disappear (Hmoud & Laszlo, 2019; El-Homsi, 2018). Besides, other research highlights the high chance of recycling employees rather than job loss and unemployment (Manyika et al., 2017a; Novakova, 2020; Makarius et al., 2020). It is estimated that 75-375 million employees will change their professional categories all around the world by 2030 (Manyika et al., 2017b). The World Economic Forum Survey about the Future of Jobs shows the managers are willing to reskill, upskill and support the workers who are displaced from their current jobs, with 46% of workers shifted to emerging jobs. Further, 44% of the required skills will be changed by 2025 (Schwab & Zahidi, 2020), which does not conflict with the historical trends of labour force restructuring (Manyika et al., 2017b). After searching in wide macro-level scenarios on employment, Vermeulen et al. (2018) found that humanity is confronting "the usual structural change" rather than the "end of work". Thus, instead of considering job losses to modern technologies, new job opportunities will be created. To conclude, there are different scenarios for the future of jobs; first, the routine and low skilled jobs will disappear and be replaced by technologies. Moreover, the jobs which need more human-machine integration will have a new structural change of the employees' roles and tasks. Finally, an advanced job opportunity will appear, especially the jobs that require more creativity and high technical skills. As mentioned previously, the current COVID-19 pandemic has its impact on the future of jobs by accelerating its arrival. It can be divided into three groups, the first one "essential workers" like health employees and shop assistants; the second one "remote workers" like teachers and customer service; and the last one "displaced workers" such as hospitality and tourism, travel

employees. All three worker categories need reskilling, more flexibility, and upskilling agenda (Schwab & Zahidi, 2020). Consequently, uniting leaders and employees' efforts can powerfully build a socio-technical work environment. AI can be integrated into socialisation efficiently, which results in achieving growth alongside machines, not against them.

## CONCLUSIONS

To enhance competitiveness, sustainability and cost cuts, companies integrate automation technologies into their business environment. Besides, the current COVID-19 pandemic crisis has forced companies to increase modern technology adoption. However, modern technologies influence the unemployment and shift of jobs. Thus, it is vague to recognise the tangible impact of technologies on unemployment and the future of employment, as several possible scenarios may unfold. First, routine jobs will continuously replace workers and eventually disappear. Second, professions will be redesigned to fit with the human-machine integration. Third, an advanced job opportunity will appear in addition to the other categories indicated by World Economic Forum. Moreover, policymakers need to investigate the effect of technologies in the economy and set new policies and rules to eliminate the negative impact of massive technology adoption. Also, leaders, workers, and organisations must prepare for the new situation by building organisational structure, redesigning their processes, reskilling the employees and fostering a socio-technical work environment, which refers to the integration of AI in efficient socialisation, which results in achieving growth alongside machines, not against them.

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Table 1

**Key finding from various studies about 'technologies' effect in firms.**

| Nr | Author, year                     | Technologies type, Country                | Main Findings   |
|----|----------------------------------|---|---|
| 1  | Ivanov et al. (2020)             | Automation technologies, Bulgaria         | The result shows that automation fear was positively associated with the perceived dehumanisation, social impact, work automatability, and negatively associated with professionalism. In addition, several solutions to automation fears on a personal, corporate, and social level have received participants' support.   |
| 2  | Makarius et al. (2020)           | AI systems                                | They conclude that it is the 'companies' responsibility to establish a socio-technical capital which includes integrate AI and employees into the organisations. To support workers to cope their fears of being replaced to AI. They further mentioned that there is an association between higher automation of jobs with the lower human skill level that can easily be substituted. |
| 3  | Meteab et al. (2020)             | IT applications, Iraq                     | They claim that the adoption of technological applications like IT applications caused improvement in productivity, save worker time, increase efficiency, and create job opportunities.  |
| 4  | Purwanto et al. (2020)           | Digital assistant applications, Indonesia | It finds out that digital 'assistants' users require two-way interactions and privacy protection of their personal data, which can presume the users' needs. Also, digital assistants able to think and act like humans.  |
| 5  | Sheehan, Jin and Gottlieb (2020) | Chatbots, America                         | When companies apply chatbot, it is important to consider the customer need for human interaction.  |
| 6  | Novakova (2020)                  | Automation (robots), Slovakia             | Automation evolution is transforming the firms' structure and the workers' roles which consider as a production process are becoming redundant because of machines' adoption growth.  |
| 7  | Syed et al. (2020)               | Robotic Process Automation (RPA)          | A set of themes and challenges have been reviewed in regard to Robotic Process Automation and its impact on the future of jobs.   |
| 8  | Parschau and Hauge (2020)        | Automation, South Africa                  | The effect of automation on unemployment in the apparel industry in South Africa has been negligible and it is estimated to remain the same. They further stated that many industries and countries are facing various obstacles to adopting automation technologies, especially developing countries.  |

|    |                         |   |   |
|----|-------------------------|---|---|
| 9  | Camiña et al. (2020)    | Automation (industrial robots, computer-aided design and manufacturing, data-driven control and flexible production systems), Spanish | In their research they examined the relation of automation technologies on productivity and employment by testing 5511 Spanish industrial companies, their result shows the need to apply new management strategies that depend on data-driven decision making as well as create policies that support the automation skills. |
| 10 | Huang and Rust (2018)   | Artificial intelligent  | They conclude that firm should consider dividing the tasks between AI and workers instead of replacing them, and they should create human-machine integrated service strategies, policymaker need to examine the effect of AI in the economy. As well as they mentioned that advanced AI may cause threats for employees.     |
| 11 | László (2020)           | Artificial intelligent (Intelligent system)   | Another factor has been indicated which includes involving the customer or the target group in the decision-making mechanism to have feedback if they are willing to interact with an intelligent system within a secure and Trustworthy environment.   |
| 12 | Vermeulen et al. (2018) | Automation (robotics and AI)  | After they searched in wide macro-level scenarios on employment, they found that humanity is confronting "the usual structural change" rather than the "end of work". Thus, instead of considering only losing jobs to modern technologies, new job opportunities will be created.  |
| 13 | Hmoud and Laszlo (2019) | Artificial intelligent  | Their study stated that Routine jobs will be replaced by AI and then may disappear. Further, they explain AI will improve the production and the outcomes of the hiring process as AI can take over the time-consuming tasks such as sourcing, screening applicants, and eliminate human biases.                              |

Source: 'Author's own work