Research in Social Sciences and Technology

https://ressat.org

E-ISSN: 2468-6891

Volume: 8 Issue: 4 2023

pp. 135-146

Artificial Intelligence (AI) and Automation in the World of Work: A Threat to Employees?

Mvuyisi Mabungela[a]

a. Department of Economics and Business Science, Faculty of Commerce and Administration, NMD Campus, Walter Sisulu University, South Africa.

Email: mmabungela@wsu.ac.za

10.46303/ ressat.2023.37

Article Info
Received: August 21 2023
Accepted: October 15, 2023
Published: November 1, 2023

How to cite
Mabungela, M. (2023). Artificial intelligence (AI) and automation in the world of work: A threat to employees?. *Research in Social Sciences and Technology*, *8*(4), 135-146. https://doi.org/10.46303/ressat.2023.37

ABSTRACT
The introduction of machines driven by artificial intelligence (AI) and automation technologies has already had a significant impact on the manufacturing, automotive, logistics, retail, and wholesale industries, and the repercussions of their replacement on the human labour has been a hotly disputed subject. AI and automation technical advancements are having a big influence on workforce turnover. The aim of this study was to look at employees' attitudes on Artificial Intelligence and Automation at work, specifically whether they see AI as a threat or not. Secondary data sources from several authors were utilised in this article. This data was gathered from published and peer-reviewed publications, internet sources, and textbooks pertinent to the issue under consideration. Some researchers contend that automation is likely to add to South Africa's high unemployment rate. There is a scarcity of empirical data in the form of published empirical research concentrating on the stress that AI and automation place on employees, hence the study is being conducted. Based on this study, it appeared that employees feel threatened by this rise of Artificial Intelligence and Automation.

KEYWORDS
Automation; skills development; technology; employment.

INTRODUCTION

Since the dawn of time, humanity has been developing new, better tools and technologies to achieve more economic output with less human resources. Some of these developments have had a revolutionary influence on numerous economic areas (Muro et al., 2019). Consider the electrical power grid, the steam engine, and information technology. Some more specialized innovations include automated teller machines, industrial robots, and robotic weaving looms.

Fundamentally, automation exists to replace labour-intensive tasks carried out by humans with those completed by machines, with the goal of boosting output quantity and quality while lowering unit costs. Humans have historically been able to move on from physically demanding, boring, or menial jobs, thanks to the ability to boost employees' productive capacity, which has raised the standard of life.

Previously, workplace replacement by robots allowed workers to focus on more essential tasks or develop new ones. According to Acemoglu and Restrepo (2018), while the agricultural and industrial revolutions of the 18th and 19th centuries saw widespread job automation, the share of the working population grew due to growing demand for new goods, services, and occupations.

The increased popularity and demand for robotics has greatly simplified living. Nevertheless, when robots replace all jobs in the industrial sector, a fearful hatred against humans arises, (Rapanyane & Sethole, 2020). Robots enhance productivity while diminishing job opportunities. Robots have already taken over all blue-collar employment. Machines are making inroads into white-collar jobs. As a result, jobs in all industries will be jeopardized. Robots, or artificial companions, can perform low-wage hard labour during off-hours, offering immense comfort to the world.

According to Lewicki et al. (2019), robots do occupations at a quicker rate, with research indicating that one robot can complete the same tasks as 70 full-time human workers. In this case, this article argues that technological advancements are inevitable, just like conflict at work. These are changes that we need to accept as we move forward. Training and development would help reduce termination of employment as technology needs trained and qualified employees.

LITERATURE REVIEW

Artificial Intelligence

AI is an interdisciplinary science field. Some of the scientific disciplines that underpin AI are statistics, cognitive psychology, decision theory, neurology, linguistics, cybernetics, and computer engineering (Russell & Norvig, 2015). AI is described as computer systems that duplicate or mimic intelligent human actions, but in various ways (Bhave et al., 2020). Artificial intelligence (AI) has recently regained attention as a technology that not only improves learning processes but also has the ability to transform learning cultures and relationships (Baena-Rojas et al., 2023; Gadanidis, 2017; Makeleni et al., 2023). The cultural component is derived from the

link between the concept of knowledge and the use of technology. AI has the potential to enable new types of collaborative knowledge development in this field (Iftikhar et al., 2020). The AI application illustrates socio-technical system dynamics as well as the implementation of a new technological component. There is a need to better understand these interactions, as well as the possibilities for collaboration, as well as the risks and unintended consequences of using AI in the workplace.

Benefits of AI and Automation at work

Employees, particularly low skilled employees believe that the introduction of technology at work has reaching consequences to their work. The general assumption is that they will be retrenched based on operational requirements, as Section 189 of Labour Relations Act suggests. However, according to Ivanov (2017), the benefits of AI are as follows:

- The main benefit for employees is that the stress of labour-intensive work may be reduced; tough, time-consuming activities can be completed using self-governing frameworks. The same is true for typical back-end procedures in the service industry: frameworks may be built to gather information organically, transport data from one system to another, and handle difficulties. If an interface is created between two systems, manual data entry is no longer necessary.
- Automation and the usage of manufacturing robots result in considerable labor and product cost savings, particularly in developed countries (countries with high labor costs).
- Another aspect that distinguishes robots is that they do not get ill, have children, go on strike, or take yearly vacations.

In contrast to human capital, there is mass manufacturing. Several businesses are increasingly relying on technology to boost output.

Shortcomings of AI and Automation at work

With the scourge in unemployment rate in South Africa and the shortage of skills, particularly youth, Robotics are seen as a threat to employment in South Africa, yet a future for the skilled. According to Frank et al. (2017), the first and most significant consequence of technology is the removal of employment through automation; nevertheless, while many jobs will be lost, there will also be the development of new jobs and the changing face of other occupations, which will require trained individuals.

Another significant consequence will be the quality of employment that persist. Humans will very certainly continue to do some of the labour that robots and computers will not be able to accomplish, and some of the positions are rather unexpected. For example, while we might reasonably anticipate artificial intelligence to handle most customer service complaints and queries, most robots struggle with simple tasks that many humans take for granted, such as opening doors.

Because of the disruption caused by advanced robots and artificial intelligence in the production of goods and services, humans will almost certainly have to find a position in the

global gig economy. Because human labour will be increasingly restricted to physical or mental activities that humans can still execute better than machines, humans will be forced to hustle, performing things that robots cannot yet accomplish as well or as effectively as machines (Schwab, 2016).

Brief historical overview of robotics and automation

The first industrial revolution began in the seventeenth and eighteenth centuries with the discovery of steam, which powered machinery and permitted mass manufacturing. For example, in the textile business, steam-powered machines rendered craftsmen (both skilled and unskilled) obsolete due to higher efficiency and output capacity (Thompson, 2017).

Therefore, robotics and artificial Intelligence techniques are carrying on what previous automation technologies have done in the past: using machines and computers to replace human labor in a growing number of jobs and industrial processes. Most industries need the completion of many tasks at the same time. For example, mining businesses require personnel to dig minerals underground, others to transport the materials to processing areas, and yet others to refine the minerals into a finished product. Each of these jobs may be completed using a combination of human work and machine labour. Most of these duties were extremely labour demanding at the start of the British Industrial Revolution.

AI and risks associated with Automation.

A rising number of experts warn that computers will replace human employees across different economic sectors, resulting in mass unemployment (Brynjolfsson & McAfee, 2014; Frey & Osborne, 2017). There is also evidence that labor may be more available than demand in increasingly automated society, which might explain why wages in many wealthy nations are stagnant. According to Nam (2019), people in numerous industries are increasingly anxious about their job security because of the application of various types of technologies.

Skills development as a response to AI related threats

Scholars like Mabungela & Mbukanma stressed out that training and development of employees are very crucial aspects in accelerating performance. With the rapid changes in the world of work, and the introduction of new technologies in executing tasks, there is a need for reskilling and redevelopment of employees so that they could remain relevant in the labour market. To remain relevant and competitive in the labour market, it is important to note that training and development is the way to go. Employee training and development is a vital component of Human Resources planning activities, because it not only maximizes the returns of individuals, but it may also attract better talent to the organization (Bapna et al., 2013). Employee training and development is one of the most significant motivators used to help both individuals and organizations in achieving their short-term and long-term goals and objectives. Training and development not only improve knowledge, skills, and attitudes, but it also has a number of other advantages, including increased employee morale, increasing employees' involvement in the change process by providing the competencies needed to adjust to new and challenging

situations, and opening the door to recognition, higher pay, and promotion. It also assists the company in increasing the availability and quality of its workforce.

Research questions

To understand AI and robotics at work, the study seeks to answer the following questions:

- How does the future of work for employees look like with the deployment of AI and robotics?
- How is training and development relevant in response to AI?

METHODOLOGY

Both primary data, which is acquired specifically for research, and secondary data, which is collected and organized by others, are important to social scientists, Mathews & Ross (2010:51). This paper used secondary data sources from different authors. This data was obtained from published articles and peer reviewed articles, online sources and textbooks that are relevant to the topic. IBSS, Scopus and google scholar were search engines that the researcher used to retrieve these articles. In terms of inclusion and exclusion criteria, the present study utilised articles that are mostly relevant in the topic under investigation. All the relevant articles were scrutinised and reviewed for relevance. All those that were deemed irrelevant were excluded in the selection process. Out of 956 articles that were retrieved through the above-mentioned search engines, 57 articles were found to be within the subject under investigation. 11 articles were selected and were regarded as the best articles to address the aim of the study. The main advantage of secondary data is that it is often guided by professionalism and expertise that may not be available to individual researchers or small research projects. Previously conducted research on the same issue is collected into a cohesive whole in a secondary study (Babbie et al., 2009). Users may benefit from gathering data from many sources and analysing it based on their requirements (Prasanna, 2022). Secondary sources examine or argue the meaning and context of primary sources to advance our understanding of a subject (Dolowitz et al., 2008:90). Unique ideas may arise when secondary data is used honestly (Davis, 2007:33).

Sampling

Articles were obtained from the different search engines as shown in the figure below based on their relevance to the subject at hand. During the search, the following search terms were used: artificial intelligence, robotics, and the future of employment.

Articles were obtained from the different search engines as shown in the figure below based on their relevance to the subject at hand. During the search, the following search terms were used: artificial intelligence, robotics, and the future of employment. The above-mentioned number of publications emerged, and a systematic method was followed to choose the most outstanding articles to answer the study's objectives.

Table 1: Summary of the reviewed articles in different search engines

Author/s	Title of article	Aim of the article
Mustapha, R.	Global implications of adopting frontline robots as service robots in hotel industry	The aim of the article was to examine the implications associated with the adoption of frontline robots as service robots in the hotel industry
Budhwar, P., Malik, A., De Silva, M. T., & Thevisuthan, P. (2022).	Artificial intelligence–challenges and opportunities for international HRM: a review and research agenda	The purpose of this study was to investigate how AI-enabled intelligence technologies effect employee and organizational results in the global business setting.
Kumar, B., Kumar, B., Nagesh, Y., Singh, S., & Rani, J. (2022).	The continuous investment in artificial intelligence and its impact on ensuring customer satisfaction	The study has been formulated to analyse the impact of huge investment in the support of AI for gaining customer satisfaction. The implication for employees is on training and development.
Brougham, D., & Haar, J. (2020).	Technological disruption and employment: The influence on job insecurity and turnover intentions: A multi-country study. Technological Forecasting and Social Change	The study aimed to investigate whether technology has an influence on job insecurity and turnover intentions.
De Vries, G. J., Gentile, E., Miroudot, S., & Wacker, K. M. (2020).	The rise of robots and the fall of routine jobs	This paper examined the impact of industrial robots on jobs
Rapanyane, M. B., & Sethole, F. R. (2020).	The rise of artificial intelligence and robots in the 4th Industrial Revolution: implications for future South African job creation.	The article investigated the rise of AI with a specific reference to South African job creation.
Botha, A. P. (2019).	A mind model for intelligent machine innovation using future thinking principles.	The goal of this study is to discuss how innovation may evolve in the future from a human-only effort to human-machine co-innovation, and finally to autonomous machine innovation.
Xingtai Zhang & Hongyan Jin (2023)	How does smart technology, artificial intelligence, automation, robotics, and algorithms (STAARA) awareness affect hotel employees' career perceptions? A disruptive innovation theory perspective	The study aimed to investigate the employees' awareness of smart technology, artificial intelligence, automation, robotics, and algorithms (STAARA) and whether this is a threat to their employment
Peeters, M. C., & Plomp, J. (2022).	For Better or for Worse: The Impact of Workplace Automation on Work Characteristics and Employee Well-Being	The study investigated the effects of deploying an automation technology (in this case, Robotic Process Automation; RPA) on job characteristics and employee well-being.

Results based on systematic review process

As outlined above, this article utilized secondary data to come up with recommendations and conclusions. Many scholars in Information technology, Human Resources and other fields have conducted studies that relate to the Artificial Intelligence and Automation. The current study found that:

Kumar et al. (2022) analysed the impact of huge investment in the support of AI for gaining customer satisfaction. The study has found out global business market can be enhanced by increasing their production rate and allowing creativity through AI. The study also has a Human Resources Development need where machine operators (staff) need a thorough training and development for the smooth running of the business.

AI-powered human resource management enhances employee outcomes such as work satisfaction, employee engagement, and engagement, ultimately leading to higher performance. Additionally, AI technology has the potential to liberate individuals and their time from a variety of predictable and repetitive chores (Maedche et al., 2019). Yet, research indicates that these automated technologies may have a detrimental influence on personnel.

Budhwar et al. (2022) conducted AI research and discovered that artificial intelligence and workplace automation aid in the success of organizations. HRM automation technologies have an influence on both employee and corporate outcomes. According to research on AI-enabled HRM delivery, this leads to better productivity, cost savings, and operational efficiency (including flexibility, scalability, security, and reliability), as well as enhanced customer retention and loyalty (Botha, 2019).

Wirtz (2019) noted, on the other hand, that while research emphasizes the positive benefits of new technology, several unfavourable features have also been uncovered. For example, in human resource management, inappropriate use of such technology may result in excessive staff turnover. Although service robots play an essential role in the market, individuals are regarded as the most valuable assets in people-intensive firms.

According to Brougham & Haar (2020), the possibility of technological disruptions leads to work insecurity and, as a result, greater turnover intentions. They also argue that when workers have fewer career mobility options, they are more exposed to technological disruptions. Brougham & Haar (2020) also indicates that turnover has negative implications, including low employee job satisfaction, when employees quit firms. Thus, many studies claim that technological improvements in organizations raise employee dread of their duties and responsibilities, which may be negatively impacted because of this new technology.

Furthermore, De Vries et al. (2020) in their study used ten years of data from 37 different economies to examine the link between the increase of robots usage and the reduction of employment vacancies. The research revealed that the increased use of automation and robots significantly reduces job chances.

According to Rapanyane & Sethole (2020), sectors like manufacturing, logistics, retail, and wholesale, as well as some of the lower-skilled occupations within them, are the most

vulnerable to being replaced by some technology, machinery, or robots. This poses a threat to the future of employment to those who are working in the retail and manufacturing industries. Relevant skills are needed, and most employers are encouraged to reskill employees so that they can be relevant in the ever-changing world of work.

Zhang & Jin (2023) examined career advancement as a counterstrategy to mitigate STAARA's substitution effect. The first case study indicated that negative (vs. positive) STAARA knowledge among hotel employees leads to increased job instability and mobility. Furthermore, according to Case Study 2, negative (vs. positive) STAARA awareness leads to increased job instability and mobility for hotel employees with low level career growth.

Peeters & Plomp (2022) investigated the effects of implementing an automation technology (Robotic Process Automation; RPA) on work characteristics and employee well-being using 420 employees from a Dutch ministry where RPA was recently implemented. Structural equation modelling revealed that RPA use was negatively related to both autonomy and task variety, posing a threat to employee work engagement.

In the context of South Africa's labour market, potential implications include people taking many jobs from different firms rather than working for one large corporation. In addition to the career paths already described, this list will include credit analysts, mathematics technicians, and data analysts who will arise from the total digital data circulation. In reality, the 4th IR will ensure that computers have a better edge than humans in storing huge data that they can also access, analyse, draw from, and interpret to produce significant impacts that are more effective and accurate than human brains.

Employees, according to some AI experts, are the most important assets because they can respond faster than machines (Wirtz, 2019). According to research conducted by Morikawa (2017), female and younger employees are more likely to notice the risk of their jobs being replaced by AI and robotics.

According to employee-side data, more over 30% of workers fear being replaced by AI and robotics in the future. Subjective risk is higher in younger generations (those in their twenties and thirties), irregular employees, and those in administrative and industrial process positions. People with higher levels of education, particularly in science and engineering, were less likely to leave their jobs. Meanwhile, it is anticipated that job-specific skills acquired via vocational education, or a professional license would be less likely to be supplanted by AI and robotics.

CONCLUSION

Based on the reviewed articles, it can be concluded that artificial intelligence and automation are really a threat to low-skilled employees. Scholars have argued that artificial intelligence and automation are here to stay, and that agriculture needs automation for production purposes and hotels for faster servicing of clients. Although automation is here to stay, this article noted that the implementation of automation has caused instability in many employees in the hotel

industry. Also, the study noted that in order for companies to remain relevant and competitive, they should invest in artificial intelligence and robotics. Employees, on the other hand, should be trained and developed, reskilled to meet the demands of the organization, and remain relevant at work. In this era, all organizations are transforming, using technology to boost their businesses and meet customer needs. Therefore, skill development is key for employees.

Study limitations

The study has a number of limitations that provide guidance for further research. First, because the study relied on secondary data, future research should focus on empirical studies from diverse nations and economic backgrounds to better corroborate the findings. There is limited scholarly articles and books that are focusing on the perceptions of employees on AI and Automation. The study utilized secondary data from different published articles.

Recommendations

There is a need to make employees aware that, while the 4th IR will bring wonderful things to our worldwide communities, the global community should also be aware of the negative shortfalls. This includes bad lessons about employment when robots take people's jobs. Based on the reviewed articles and the lessons learned throughout the article, the researcher has formulated the following recommendations:

- The current study recommends that organizations should prepare their employees for 4th industrial revolution. This can be done through training and development focusing more on those employees with less education.
- This article further recommends that a culture of learning to all employees should be instilled so that they can be ready to adapt to changing environment.
- The present study further recommends that individuals should regularly upskill and reskilling, embracing AI, focusing on tasks that require human talents, being adaptive, and highlighting the value of human labour.
- Technical skills should be the focus of most of the organizations as this AI and Robotics is here to stay.

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