

Exploring The Future Of Work: Impact Of Automation And Artificial Intelligence On Employment

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Abstract

The automation of tasks and the existence of artificial intelligence (AI) are revolutionizing the workplace. However, this may also jeopardize people's employment prospects. The purpose of this study was to determine how automation and artificial intelligence affect human employment. The descriptive qualitative method will be used to conduct this study. The information used in this study is derived from a variety of research findings and earlier studies that continue to address the application of automation and artificial intelligence in the workplace. According to this survey, many jobs are currently being replaced by automation and artificial intelligence. AI still finds it challenging to replicate certain aspects of human intelligence, such as empathy and intuition. Even though automation and artificial intelligence (AI) may pose a threat to human workers, as human resource skills grow, humans who adapt will not be supplanted by machines; rather, human-machine work will be integrated, with automation and AI serving as tools for human labor rather than as a replacement for humans.

Keywords: Automation, Humans, Work, Artificial Intelligence.

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I. Introduction

Over the past 20 years, there have been notable developments in automation and artificial intelligence (AI). Artificial intelligence is a rapidly developing technology that is predicted to transform how things are done globally. Artificial Intelligence (AI) refers to software or hardware that exhibits intelligent, human-like behavior. The goal of developing AI is to enable computer systems to mimic human intelligence in order to carry out particular activities without the need for human assistance (Tschang & Almirall, 2021). Despite the fact that this technology promises to make work easier and more efficient, human resources studies reveal that employees are somewhat concerned about this trend. They are worried about how automation would affect productivity and the labor market. But according to some economists, this technological innovation will lead to the creation of new jobs because there is a growing <https://endless-journal.com/index.php/endless/> 125ENDLESS: International Journal of Future Studies Vol. 6 No. 1 (2023) the need for qualified personnel capable of managing and sustaining ever-more-advanced automation and artificial intelligence systems (Kim et al., 2021).

Some have argued that the fourth industrial revolution has altered the lines separating the digital, biological, and physical domains due to the rapid advancements in information technology and artificial intelligence. The services provided by numerous businesses and organizations are a broad manifestation of the advancements in artificial intelligence and information technology. For instance, monotonous and repetitive human tasks are gradually being replaced by robots for jobs in the home, healthcare, hospitality, and dining industries (Rotatori et al., 2021).

Virtual bots, often referred to as chatbots, are gaining popularity among large organizations as a way to reduce the waiting time that often occurs in human customer assistance and to turn customer service into a self-service alternative. Additionally, the job of the investment portfolio manager in decision-making is being replaced by big data AI tools.

In addition to replacing some aspects of customer service, social robots, or social bots, are being utilized by businesses more frequently to assist in responding to frequently asked inquiries and offering answers to issues that clients may be having (Wirtz et al., 2021).

There are worries that human labor may eventually be replaced by automation and artificial intelligence as they replace some of these positions. This is because AI is becoming more and more capable of carrying out jobs that were previously limited to humans. There may be fewer jobs available as a result of automation and AI use across a range of industries, particularly in repetitive and readily automated jobs.

According to experts, the advanced nature of AI has the potential to replace technical occupations that were previously thought to be secure from automation, such as programmers and data analysts (Willcocks, 2020). This study then seeks to determine how future advancements in automation and artificial intelligence will impact human employment, as briefly explained above.

II. Literature Review

1. AI, or artificial intelligence Jogiyanto defines artificial intelligence (AI) as a machine or intelligent equipment (often a computer) that is capable of carrying out a task that requires intellect from a human to complete. According to Kusumadewi, artificial intelligence (AI) is a branch of computer science that enables machines (computers) to do tasks that are similar to or even better than those performed by humans. Suparman defines artificial intelligence (AI) as a branch of computer science that focuses on developing hardware and software that can accurately replicate some of the capabilities of the human brain (Nahavandi et al., 2022).

John McCarthy claims that artificial intelligence (AI) is a science and technique used to create clever computer programs and intelligent devices.

According to Cioffi et al. (2020), artificial intelligence (AI) is a step toward creating computers, robots, or apps or programs that function intelligently, exactly like humans.

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The goal of developing AI itself is to: a. Develop an expert system, or a system that can learn, exhibit, clarify, and counsel users in addition to performing intelligent behavior.

b. Construct a system that can comprehend, reason, learn, and act like a person to incorporate human intelligence into robots (Confalonieri et al., 2021).

Computer science, biology, psychology, language, mathematics, and engineering are among the fields that contribute to artificial intelligence. The ability to reason, learn, and solve problems is a crucial step in building artificial intelligence-related machines. Techniques used by AI in solving problems by organizing information and knowledge so that users can easily access and understand it can be easily modified to correct errors and be helpful in various situations even though it are still not perfect or accurate (Nazari & Sadeghi, 2021). From the various paragraphs above, it is clear that artificial intelligence is a technique for giving a computer intelligence and the capacity to think like a human in order to solve problems and break down these thought processes into crucial steps (Hoffmann, 2022).

2. Automation

Automation, which is Greek for "self-study," robotization, industrial automation, or numerical control, is the act of replacing human operators with control systems like computers to operate industrial machinery and process controls.

The concept of permanent mechanization of industrial machines as operators is carried out by humans through the use of machines as assistants in response to physical work demands. This is known as industrialization, and it represents a significant reduction in human needs as sensors and in terms of work mentality (Packo et al., 2022).

What Automation Is In order to increase productivity, efficiency, and flexibility, automation is a technology that combines the application of mechanics, electronics, and computer-based systems through processes or procedures that are typically organized according to an instruction program and combined with automatic control (feedback) to ensure whether all instructions have been carried out correctly. Fords in Detroit were the first to use the term automation. This phrase refers to machine tools and mechanical equipment that are utilized to create a continuous production line (Wang et al., 2022).

According to Santoso, automation is the process of automatically regulating a tool's operation, which might take the place of people's observation and decision-making abilities. Human involvement in control is minimal because the current control system is beginning to transition to automation (Santoso et al., 2020). Because it is more thorough, safe, and efficient than a manual method, an autonomously controlled equipment system is much more convenient. Then, Ghaffar made the case that automation is a scientific discipline that necessitates the replacement of manual machines with automated ones in order to streamline current life activities (Mehmood et al., 2020).

127 <https://endless-journal.com/index.php/endlessVolume> 6, Issue 1, 2023: ENDLESS: International Journal of Future Studies According to Freddy et al. (2022), automation is one of the outcomes of technology advancements and a substitute for acquiring a functional system that is quick, precise, efficient, and effective in order to get more ideal outcomes.

3. Employment

According to the conventional wisdom, people have the biggest impact on a country's ability to succeed. The rationale behind this is that if no human resources can process nature (land) in a way that benefits life, then it is worthless.

In this case, Adam Smith's classical theory acknowledges that economic growth is driven by the effective utilization of human resources. Further (physical) capital accumulation is necessary to sustain economic growth after it has begun.

In other words, economic advancement depends on the effective use of human resources (Javan Mardi et al., 2023).

Thomas Robert Malthus is considered a classical thinker who made a significant contribution to the development of economic principles, second only to Adam Smith. Principles of Population is Malthus' best-known work. Malthus was a supporter of Adam Smith, but the book makes clear that not all of his beliefs aligned with Smith's. On the one hand, Smith believes that specialization and the division of labor will always improve human welfare. However, Malthus had a gloomy outlook for humanity's future (Blanco, 2020).

It is measurable that one of the main components of production is land. In many cases, the construction of homes, industries, and other structures, together with highways, has reduced the amount of land that may be used for agriculture. In order to meet human needs, the population of humans increased significantly faster than agricultural production, according to Malthus. Malthus thought population control was required because he did not think technology could grow faster than the population. This is a moral constraint, according to Malthus (Zhou et al., 2021). An economy built on the power of the market mechanism will always reach equilibrium, according to the classics. All available resources, including labor, will be fully exploited in a balanced posture. Therefore, unemployment does not exist in a market-dynamics-based economy. If there are no jobs, people would rather work for less money than be unemployed. Employers will be more inclined to hire more of these people because of their readiness to take a lower salary (Kretschmar et al., 2022).

John Maynard Keynes criticized the classical system for lacking an automatic adjustment mechanism that would guarantee the economy would reach full employment and equilibrium. In reality, the labor market does not operate in line with the traditional understanding mentioned above. Wage rates will be reduced to safeguard workers' interests wherever there is a labor union (Demand, 2020). The income level of the populace may decline even if the wage rate is reduced. Some members of society will have less money, which will reduce their purchasing power and, ultimately, their level of consumption.

According to Chen et al. (2022), a decrease in the population's purchasing power will result in a drop in prices if the population's purchasing power declines.

When hiring employees, employers use the labor productivity curve's marginal value as a benchmark; as prices decline, its value will also fall. The productivity-value curve will only slightly decrease if the price drop is minimal.

However, there are still fewer new hires than there are available workers.

Even worse, if prices fall, so does the labor market's marginal productivity value curve, which limits the number of workers that can be accommodated and leads to widespread unemployment (Petrosky-Nadeau & Zhang, 2021).

III. Technique

A qualitative method will be used to conduct this study. Descriptive approaches will be used to analyze the research data. The information used in this study is derived from a combination of earlier research findings and studies that are still pertinent to the topic at hand. Following collection, the research data will be processed right away to enable the discovery of the findings (Sari et al., 2022).

IV. Outcome And Conversation

1. AI's use of human intelligence Mechanical, analytical, intuitive, and emphatic intelligence are the four categories of human intelligence that are required by the workforce in service industries that use artificial intelligence (AI) to perform certain tasks.

Mechanical intelligence is the first. The ability to perform ordinary or repetitive tasks automatically is referred to as mechanical intelligence. Because mechanical procedures are carried out so frequently that they may be finished with little to no high-level reasoning, they do not require a lot of creativity from staff members (Spring et al., 2022). The majority of machine intelligence workers are unskilled laborers who don't need any further schooling or training. In essence, waitresses and contact center representatives in banking, transportation, and telecommunications companies are mechanically proficient workers. The mechanical AI used by service businesses is configured with restricted learning and adaptive abilities to maintain consistency while mimicking human-like automation. One of the most prevalent uses of artificial intelligence is in robots. Service robots are devices that can perform manual labor, function autonomously without guidance, and be managed by computers without the need for human supervision. Robots use continuous sensor perception and prior knowledge to identify and react to changes in the physical and temporal aspects of the service environment. Although mechanical AI has relative consistency advantages over humans (such as not experiencing human weariness and reacting to the environment in a highly dependable manner), robots cannot understand the world and not all of them are capable of automated adaptation.

Analytical intelligence comes in second. Analytical intelligence is the capacity to use reasoning and information processing to solve issues.

129 <https://endless-journal.com/index.php> Volume 6, Issue 1, 2023: ENDLESS: International Journal of Future Studies mathematics and reasoning abilities.

Workers in the service industry, such data scientists, accountants, and financial analysts, frequently exhibit human analytical intelligence, which is derived from training, experience, and cognitive specialty (Ponomarev, 2021). AI-based technologies and processes, such as machine learning and data analytics, take the place of human analytical intelligence. It is extensively employed in businesses with data and information-intensive characteristics because of its capacity to do complicated tasks in a methodical, reliable, and consistent manner. In the workplace, marketing teams can easily implement mass personalization based on large consumer data thanks to this methodical feature.

Intuitive intelligence comes in third. Creative thinking and efficient situational adaptation are traits of intuitive intelligence. This kind of intelligence is called wisdom since it is experience-based and grounded in holistic thinking (Hallo & Nguyen, 2022). Jobs in the service industry that require intuitive intelligence include marketing managers, management consultants, attorneys, physicians, sales managers, and senior travel agents. These positions demand insight and innovative problem-solving skills. Since self-awareness, distinct emotions, and experiences play a major part in developing the instincts that underpin intuitive intelligence, it is one of the human aspects of intelligence that artificial intelligence is still honing to mimic. The CRM or investment management department, which currently makes use of AI-based chatbots and trading software like Tech Trader, is typically where complex, creative, holistic, contextual, and experience-based tasks are completed in the workplace.

Empathic intelligence comes in fourth. Empathic intelligence encompasses interpersonal, social, and people skills that enable people to be sensitive to others' feelings and collaborate effectively with others. It is the capacity to identify and comprehend the emotions of others, react appropriately to those emotions, and affect those emotions (van Kleef & Côté, 2022). Negotiators, psychiatrists, psychologists, consultants, and other professions requiring social skills (communication, engagement, and relationships), as well as experience in comprehending the emotions of customers and solving their problems, require empathy. Due to AI's limitations in being sensitive to human emotions, this intelligence is difficult to deconstruct into elements and binary computational processes. As a result, it has evolved into the most sophisticated generation of AI technology available today, including Replica and Sophia bots that behave and look like people.

V. Phases Of Artificial Intelligence-Powered Job Replacement

In the early stages, mechanical AI replaces routine, standard service tasks (mechanics) due to its cost-effectiveness and reliability. As a result, AI is already starting to widely replace routine tasks. Sawhney noted that the most skilled people have kept their jobs even while production has taken the place of tedious manual labor. Workers must therefore improve their skills in order to progress into roles requiring higher intelligence and skill levels.

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In the second level, AI takes the place of human workers' comparative advantage in analytical intelligence. AI currently takes the place of both analytical and mechanical labor. At this point, AI may help with decision-making using analytical intelligence and takes the place of human intelligence in performing mundane tasks.

In stage 3, artificial intelligence (AI) starts to take the position of mechanical, analytical, and intuitive labor. AI not only does routine tasks and analyzes data to make judgments, but it also makes decisions that are responsive to the environment and influenced by user interactions. Additionally, human workers' intuitive intelligence, which is not always captured in big data, is frequently required to finish tasks or make judgments that call for reconnection with prior experiences.

Limited consumer data is recorded via big data from sensors, software, and microchips that are included into AI gadgets. Therefore, the goal of developing high-level AI is to make it more intuitive by capturing different client languages and expressions in order to gather questions that will aid in providing solutions based on the demands of the customer.

AI takes the place of mechanical, analytical, and compassionate labor in the fourth level.

For example, back-end developers' job can be aided by empathetic AI systems that provide emotional insights for user experience and engagement. For example, Affective tracks what clients say and how they are feeling by measuring, analyzing, and categorizing human responses into four emotions: sadness, happiness, anxiety, and delight. In order for employees to know the right response or for the company to provide the right service at the right time.

The last (fifth) stage is artificial intelligence (AI), which replicates all forms of intelligence and thus totally replaces human labor. Artificial intelligence (AI) can be implemented as computers that assist people, doing activities or tasks that people don't want to do so that people can choose which jobs or tasks they want to

do and live better lives. A second way of implementation is through the physical or biological integration of humans with AI-based devices. The relationship between the human brain and the Internet of Things (IoT) networked with artificial intelligence is demonstrated by the concept of "internet of brains," which uses the human brain to regulate internet use.

These situations simulate collective intelligence through AI networking, which significantly speeds up learning in service enterprise settings.

VI. AI Taking The Place Of Human Intelligence

Artificial intelligence (AI) and automation are changing sectors and will boost economic growth through increased productivity. At the same time, these technologies will change the nature of the workplace and the nature of employment. Numerous products and services have benefited from this technology, which is used by service-sector companies in a number of ways, including to identify fraudulent transactions, detect production anomalies, and personalize product recommendations. Among the most recent advancements in AI are methods for dealing with classification, estimation, and grouping problems. AI is now in its third stage of development, meaning it can mimic mechanical, analytical, and intuitive intelligence, thereby replacing human labor. The following positions have been replaced: <https://endless-journal.com/index.php/endless/> 131 Volume 6, Issue 1, 2023:

ENDLESS: International Journal of Future Studies health services (robots for delivering food and medication to COVID-19 patients and testing blood samples); AI-based financial software applications for evaluating investment portfolios and selecting potential debtors; and customer support and ticketing in the travel and hospitality industries.

The requirement for large amounts of training data and the challenge of generalizing algorithms across many service kinds that necessitate intuitive and compassionate decision-making are two examples of the technological constraints of AI. The ability of enterprises to embrace AI technologies, including big data availability, hardware and software, and human data sources, presents another implementation barrier. Because of their conveniently available data collecting and processing, as well as their predictable and structured environmental features, the financial, healthcare, and telecommunications sectors are spearheading the adoption of AI. Implementation costs, labor market dynamics, quantity, quality, labor supply-related pay, business culture, and social acceptance are other factors. When a result, when robots augment human labor, AI systems are increasingly integrating partial automation.

For example, doctors can diagnose patient cases and determine the best course of therapy with the help of an AI algorithm that can correctly read diagnostic images. Replacement of jobs The demand for stage 4 jobs that require analytical, intuitive, and empathic intelligence is changing as a result of AI. These jobs include managers, healthcare professionals, technologists, and jobs in physically unpredictable environments like residential plumbing services. These jobs involve activities that are hard to automate. The integration of AI in the workplace (stage 5), which enables collaboration between people and robots, will lead workflows and workspaces to continue evolving. For example, cashiers were permitted to help with checkout if the equipment malfunctioned prior to the introduction of self-checkout devices in retail.

VII. Replacement Of Jobs AI In The Workplace

From the perspective of human intellect, artificial intelligence (AI) technology has advanced to the point where it can replace labor that requires mechanical, analytical, and intuitive skills.

Examples of autonomous AI used in industries that depend on customer service interactions, like hotels, cruise ships, and airports, include routine and repetitive mechanical tasks, like automating service delivery through telephone voice recognition, streamlining service processes through process technology, and providing consistent services like pepper, a humanoid robot with facial recognition capabilities. Employees with intuitive abilities can gain jobs in service companies, where the analytical role is being supplanted.

While AI can replace the analytical skills required by front-end developers who create displays or applications using HTML, CSS, and JavaScript, back-end developers require more intuitive intelligence (stage 3) to ensure that sites and applications continue to function properly. Another instance is in hospitals, where dermatologists' labor in identifying skin cancer and the appropriate course of treatment can be replaced by AI-powered neural network picture recognition. In the meantime, a hotel in the US that introduced a customer application that <https://endless-journal.com/index.php/endless/> 132 is an illustration of intuitive intelligence. Hotel doors can be opened and entertainment and room service can be customized with ENDLESS: International Journal of Future Studies Vol. 6 No. 1 (2023). Another illustration is an e-commerce chatbot that has a built-in buyer-seller messaging function backed by a large database. It can serve both buyers and sellers in addition to responding to consumer inquiries (with a response time of less than 30 minutes per day). Similar to this,

investment management firms that use AI can offer suggestions for trading choices based on past data, patterns, and choices to generate the best trading or investing choices.

According to a number of research, empathetic intelligence is still in its early stages of development and has to be further developed. According to Xiao and Ding's research, for instance, artificial empathy necessitates a model-based method to deduce customers' interior states (cognitive, emotive, and physical) from data (audio, video, or other plentiful media).

As an illustration, consider the application of AI and face mapping to analyze customer responses and suggest engaging content for businesses to use in ads to draw in more customers and income, or an experimental medical technology that allows paralyzed people to write and move solely with their thoughts by connecting their brains to mechanical devices with implants or brain monitors. Based on this earlier research, it can be concluded that applying AI at the task level rather than only the job level can increase corporate efficiency and performance more effectively. By streamlining the workforce, the company will have more time to get ready for the automation transition period, which will be less harmful to workers and more cost-effective. For instance, businesses may think about deploying AI considering the following:

The task's nature (a). AI can first replace tasks requiring less intelligence. Unskilled labor will decrease as AI replaces more tasks.

b. Service nature. Soon, AI technology will more successfully replace transactional services that are repetitive, routine, and have uniform customer preferences, while relational services still need a human workforce that is more perceptive and sympathetic. It is challenging to use AI to replace services that require human involvement.

c. The business's strategic focus (a firm's strategic focus). While businesses that adopt a quality leadership resources strategy concentrate on enhancing human capital capabilities to ensure AI does not replace them, those that adopt a cost leadership strategy will use AI because AI applications are typically motivated by the prospect of long-term lower operating costs.

The necessity for workspace and workflow design to adjust to the AI era is the management implication for the service sector. Establishing a culture, standard operating procedure (SOP), integrative work environment, and AI optimization training for various work kinds in a safe and effective manner is both an opportunity and a difficulty. As work becomes more collaborative and necessitates non-hierarchical decision-making, company structures are anticipated to evolve. The security of firm data and customer privacy must always be taken into account when using it. Service providers can begin integrating AI by making people more connected. <https://endless-journal.com/index.php/endless/> 133ENDLESS: International Journal of Future Studies Vol. 6 No. 1 (2023) resources with collective intelligence, which refers to the capacity of individuals within the organization to exchange information, act and think cooperatively, and work together to accomplish organizational objectives.

VIII. Modifying Work Skills For The Artificial Intelligence Age

Employees must grasp what intelligence businesses require in order to deploy job-replacement AI and arm themselves with the necessary abilities based on industry demands. According to a number of research, service providers ought to concentrate on fostering analytical abilities by maximizing AI-based machine learning and offer business analytics training in decision-making. Creative thinking, intuition, and empathy in data interpretation should be prioritized in the development of analytical decision-making abilities. The underlying theory and applicability of dynamic approaches to organizational and individual growth are supported by this study. The two 'dynamic' approaches show essential abilities for workers to remain with the organization and advance. Career dynamism, which offers a career development model that enables employees to develop adaptive qualities to career uncertainties, and dynamic capability, which gives organizations a methodology to measure change and how their employees adapt to complex and changing challenges, are the first two.

The managerial implication is that in order to deal with quickly changing surroundings, service firms must possess adaptive skills that enable them to integrate, develop, and reconfigure internal and external competencies. People with traits like career resilience are able to be proactive and adaptable, exhibiting traits like self-reliance, drive to learn, and a good self-image. Career dynamism emphasizes critical attributes that machines and robots typically cannot replace, such as human inventiveness, openness, and interpersonal skills. Companies can also work with universities to set up special skills training programs like communication, creativity, and emotional intelligence in STEM (Science, Technology, Engineering, and Mathematics) education in the hopes that universities will generate graduates who are aware of the opportunities And challenges of automation.

IX. Conclusion

Machines and robots are starting to replace a variety of jobs that previously required human labor, such as those in finance, telecommunications, and even healthcare.

However, because artificial intelligence-based applications still need to improve on human intelligence's intuitive and sympathetic qualities, not all tasks and kinds of work in the service sector can be replaced by AI and

automation. Humans' exceptional capacity for environmental adaptation has a significant impact on this intuitive and sympathetic intelligence.

It is expected that this AI job replacement theory will offer a roadmap for how AI will replace tasks requiring a variety of intelligences, how AI can and should be used to perform service tasks, and how workers can and should adapt their skills to accomplish the integration of machine labor and human labor. The development of AI across all four intelligence components enables creative human-machine service delivery. Automation's technical feasibility is important, but it is not the only factor affecting how quickly and widely it is adopted. Other factors that have a significant impact include utilization, labor market dynamics (including the number and quality of workers and the wages that go along with them), business culture, workforce preparedness, and the expenses of developing and implementing automation solutions for the workplace.

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