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* **Technology observations**

Our society is currently undergoing significant technological advancements that will have a profound impact on our way of life in the coming decades. One of the primary drivers of this transformation is the rapid growth of the artificial intelligence and robotics industry. There are a variety of viewpoints on the potential consequences of this development, with some individuals anticipating significant benefits and endless possibilities for intelligent technology, while others are apprehensive about a potential scenario in which machines take control and jeopardize human existence. These perspectives are shared by scientists, industry experts, and the general public alike. In this research, we will examine the positive and negative effects of robots and artificial intelligence on our lives from a variety of perspectives.

1. **Health**

Modern technologies such as AI and robots play a significant role in digital health development, improving medical care. Surgical robots are valuable assistants to surgeons, increasing accuracy and reducing recovery time for patients through minimal invasiveness e.g., The da Vinci Surgery robot is a category of robotic-assisted surgical systems. The surgeon operates the robot through a console using joystick-like controls to maneuver the robot's arms, which are fitted with surgical tools. Additionally, the da Vinci robot has a high-definition camera that offers an enlarged, three-dimensional image of the surgical site. These advancements in healthcare have the potential to make medical services more accurate and accessible.

However, there are also negative effects to consider, such as job displacement for healthcare professionals and patients feeling isolated due to the lack of emotional support and empathy from robots. Ethical concerns around data privacy, algorithm bias, and accountability for AI-powered robots' decisions are also raised by the use of AI in healthcare.

1. **Agriculture**

Agricultural robots have proven to be more efficient than human workers in handling various tasks such as harvesting and spraying crops, using computer vision, machine learning models e.g., weed-whacking robot it can do everything from hoeing to harvesting or AI algorithms to monitor crop and soil conditions and predict outcomes based on weather and environmental factors.

However, the initial cost of acquiring or building the robots and the need for regular maintenance can be expensive. There is also a risk of job displacement for farmers, and the robots may alter the traditional culture and emotional appeal of agriculture. Energy consumption and associated costs are also a concern. On the other hand, robots may be more acceptable to non-farm communities, and agricultural jobs require intelligence and quick thinking that the robots may not have, leaving room for human operators.

1. **Business**

One of the incorporations of artificial intelligence into business has significant effects, both positive and negative, on the implementation of a workforce integrated with robotics. The main objective of emerging technologies is to increase safety and efficiency in all processes, rather than replacing humans in their jobs. The adoption of AI is frequently linked to productivity and efficiency improvements, as it can perform tasks at a scale and speed beyond human capacity e.g., Order Picking Robots - Here, robots have a multitude of warehouse-based applications including automated storage and retrieval, integrated material handling, as well as effortless sortation. Paper is eliminated, accuracy is increased, and walk time reduced Its capacity to analyze vast amounts of data in real-time enables organizations to deploy immediate monitoring capabilities that can identify problems and suggest solutions.

However, there are also certain barriers and disadvantages to keep in mind. For instance, the adoption of AI is hampered by a shortage of skilled technical staff and high costs, especially for businesses that lack in-house expertise. Additionally, there is the potential for automation technology to lead to job losses, and security concerns around AI systems, such as autonomous weapons, that could cause damage.

1. **Education**

The integration of AI robots in education has both positive and negative effects. One benefit is personalized learning, where robots can analyze student learning patterns and adapt teaching methods accordingly. For instance, robots can serve as classroom assistants in elementary schools and transmit videos from distant locations to aid learning. Children enjoy having robots in the classroom, and they can benefit from the experience.

However, there are also some drawbacks. The use of AI robots in education may result in job losses for teachers and other educational professionals. Over-dependence on technology may lead to a decline in critical thinking and problem-solving skills without the assistance of AI robots. Additionally, there are concerns regarding the security and privacy of student data collected by AI robots, which could be at risk of misuse or cyber-attacks.

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* **Technology Literature Reviews**

The impact of robotics in our daily lives and professions is significant, with both positive and negative effects on various sectors of our society, economy, and industry. Robotics has the potential to transform our world by increasing efficiency, safety, and service quality, as well as creating new employment opportunities. According to Fran (2016), robotic systems are interconnected, interactive, cognitive, and physical tools that perceive the environment using sensors, reason about events, plan with algorithms, and act using actuators. Although human-robot interaction will evolve, the introduction of such technologies may require re-skilling and training, posing challenges to the workforce. Therefore, governments must implement policies and programs to mitigate any adverse effects of robotics. AI robotics is an exciting field that has progressed significantly in recent years, with machine learning, computer vision, and hardware advancements enabling robots to perform impossible tasks such as navigating complex environments and delicate surgical procedures. Machine learning algorithms are among the key developments in AI robotics, allowing robots to learn from data and enhance their performance.

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MarketsandMarkets (2019) conducted a study analysis that predicts a considerable rise in the robot market in the near future due to the integration of machine learning. The study aims to investigate the history, uses, and both positive and negative effects of AI robots in various industries. After evaluating the benefits and drawbacks, the study intends to form a well-established opinion on robots. The Fourth Industrial Revolution has witnessed remarkable advancements in robotics, resulting in a three-fold increase in their use over the last two decades. It is anticipated that by 2030, there will be 20 million robots in operation globally, with 14 million of them being in China. Although often conflated, robotics and artificial intelligence are distinct concepts. Robotics refers to pre-programmed machines that perform routine tasks, while AI involves creating computer models that can simulate human intelligence. Intelligent robots that are controlled by AI algorithms, a rapidly growing technology, are the current trend in robotics. In recent decades, industrial robots have proven to be efficient and productive in factories, transforming the manufacturing sector. Robotics, along with other transformative technologies such as the Internet of Things (IoT), cybersecurity, big data, open automation architecture, virtual solutions, and collaborative robots, is projected to continue to revolutionize various domains.

In conclusion, robot devices and systems are becoming increasingly popular as the world becomes more technology-oriented. Engineers in many companies are working tirelessly to make robots faster and more efficient, due to the high demand and high cost of these devices. As a result, the economy is growing at a rapid pace. To ensure that we can continue to leverage robots and other devices to make the world more technologically advanced, we must continually seek out and learn about these technologies. It is important to remember that robots cannot completely replace humans in all aspects, so we should focus on increasing our skill power to remain valuable in the workforce. There are many resources available on robotics that we should take advantage of to gain knowledge and stay informed about technological advancements. The future generation will likely be fully automated, so it is important to prepare ourselves and future generations accordingly. Through education and training, we can develop innovative tools and skills that will drive our growth and contribute to our overall success. By measuring and improving our innovation and skill development, we can improve our student training and support, career literacy, self-awareness, and empower ourselves to succeed in a world that is becoming increasingly technology-driven.

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* **Surveys and Technology Evaluation**

The findings of a survey on AI robots in several sectors emphasized both the potential advantages and obstacles of applying these technologies. While the findings vary by industry, several polls indicate that AI robotics can boost productivity, improve safety, and accomplish jobs that humans find difficult or impossible. However, there are worries regarding employment displacement, security and privacy, as well as ethical issues that must be addressed.

Real Research, an online survey tool, published a poll on public opinion on the future of robots to get further insights into the future of robotics. Gender, age range (21-99), resident nation, marital status, and language were all weighted. This poll ran from December 19 to December 25, 2022, with a total of 20,000 participants.

Respondents were questioned about their acquaintance with the subject of study connected to robotics in figure 1, the initial survey. According to the study, 49.18% of respondents were very familiar, 20.61% were moderately familiar, and 14.58% were somewhat familiar. Meanwhile, 8.59% of respondents were slightly familiar with the field, while 7.03% were entirely unfamiliar.

Figure 1: Respondents if they were aware of the robotic field of study

The usage of robots is becoming more common as companies continue to embrace modern technologies. In figure 2, respondents were asked to name which industry they thought would profit the most from the deployment of robots in a following survey question. According to the findings, 31.14% of respondents thought the medical business would profit the most, 26.16% thought the automobile industry would benefit the most, and 27.7% thought the manufacturing industry would benefit the most.

Other respondents react to the questions based on what they believe will gain the most from this study, such as food service, construction, warehouse and logistics, agriculture, military, education, pharmaceutical, entertainment, and others.

Figure 2: Respondents on which industry would benefit the most

The next survey question asked respondents to identify the key benefits of utilizing robotics, and the findings showed that 26.03% feel greater safety is the primary benefit, while 23.41% believe higher productivity is the primary benefit. Furthermore, enhanced efficiency was regarded as the key advantage by 22.45% of respondents, while consistency was seen as the primary benefit by 12.41%.

On the other side, 28.77% of respondents say that one of the key drawbacks of utilizing robotics is limited intelligence, while 17.03% believe that limited intelligence is a big disadvantage. Furthermore, 19.13% of respondents cited a lack of originality as a key drawback, while 10.44% cited a lack of flexibility as a primary disadvantage.

In addition to the last survey, 73.58% agree that the benefits of robots exceed the drawbacks, while 5.74% believe differently.Top of Form

Figure 3: Most respondents say the advantages outweigh the disadvantages

Because robot technology evolves on a daily basis, so does the standard of robots. This poll asked respondents about their thoughts on robot safety and effectiveness.

According to poll findings in figure 4, 39.56% believe they are highly safe, 31.96% believe they are somewhat safe, and 20.28% believe they are slightly safe. On the other hand, 5.49% believe they are barely safe, and 2.71% believe they are very unsafe.

Figure 4: Most respondents say robots are safe to use

Yes, according to 63% of respondents, the future of robotics is likely to be considerably better. Compared to 28.99% who disagree. 7.89% of those polled were still unsure.

Figure 5: Respondents agreed Robots will make a better future for humanity

In figure 6, respondents were asked, "Do you believe robots will take over the workforce in the future?" The findings found that 43. 94% said 'certainly,' 36.04% said 'probably,' 11.22% said 'probably not,' 3.21% said 'absolutely not,' and 5.6% said they didn't know.

Figure 6: Most say that robots will take over many industries in the future

Overall, the survey results emphasize the need for a balanced approach to implementing AI robotics, considering both the potential benefits and risks. It is also crucial to address technical and organizational challenges, such as integration with existing systems and developing the necessary technical expertise. By addressing these challenges and working towards responsible and ethical implementation, AI robotics has the potential to transform various industries and improve the quality of life for many people.

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