

# **ROBOTICS AND AI IN BUSINESS**

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## **INTRODUCTION**

Robotics is a branch of technology dealing with the design, construction, operation and application of robots. Robots are designed to perform specific tasks, without the need of humans. Lately, robot designers have started using Artificial intelligence (AI) to enhance their abilities, so that they become even more effective and productive – as the infusion of AI make them “smart” or “intelligent.” AI seeks to allow machines to mimic and duplicate cognitive functions that are usually done best by humans.

The impact of AI and Robot technologies on business is projected to increase labor productivity by about 40 percent by 2035, and hence enable people to make more efficient use of their time [1]. In this paper, the word robots or smart robots will refer to robots that are using AI algorithms and machine learning. The purpose of the paper is to explore how robotics and artificial intelligence enhance the competitiveness and profitability of businesses, and to highlight some of the major advantages and disadvantages of AI and robotics to businesses and society.

## **BUSINESS ADVANTAGES AND DISADVANTAGES OF AI AND ROBOTS**

AI algorithms use machine learning techniques to acquire “knowledge” from massive data sets, and then use the algorithm to perform intelligent tasks such as prediction or diagnosis. As the fields of robotics and artificial intelligence continue to grow and challenge human intelligence, businesses are rapidly seeing the benefits of deploying them. A significant advantage of machine learning is that it can be used even in cases where it is infeasible or difficult to write down explicit rules to solve a problem. For example, a company that runs an online service might use machine learning to detect user login attempts that are fraudulent. The company might start with a large data set of past login attempts, with each attempt labeled as ‘fraudulent’ or ‘not’ using the benefit of hindsight [2].

Robots are also able to work all day without breaks, lift heavier loads, and tirelessly perform more strenuous tasks than human employees, which leads to an increase in productivity with no risks to human health or injuries. Products and services are also delivered with consistent quality, without human error or carelessness. For example, a Chinese company Changying Precision Technology replaced 90% of its human workforce with robots, and achieved a staggering 250% increase in productivity, and a whopping 80% drop in defects [4]. In addition, the robots can work in hazardous environments where humans cannot do so safely. This in turn leads less expenses for the company in the form of medical claims or law-suits, and bypassing the loss of production caused by injuries [6].

In the healthcare industry, Surgical robots have made major advances as well. Robot use has allowed for surgery with more precision, smaller incisions, decreased blood loss, less pain, and quicker recovery time. Today’s surgical robots extend the surgeon’s capacities; they filter out hand tremors and allow maneuvers that even the best surgeon cannot pull off with laparoscopic surgery’s typical long-handled

tools. Intuitive Surgical, a leading surgery robot maker, shipped 900 units of its popular robot, the da Vinci, each priced at \$1.5 million; and this market is expected to reach \$24 Billion by 2025 [3].

Successful applications of smart robotics include self-driving vehicles, deployment of the Kiva robots in Amazon Warehouses, and fraud detection for financial institutions. These robots don't just efficiently execute tasks as they also generate a lot of data, which can be analyzed for valuable insights – often in real time, which are then used to make course corrections, redesign the robots etc. Many industries hence use smart robots to increase productivity and increase quality – thereby gaining competitive advantages, reducing cost of production (increasing profits), reducing prices for customers and enhancing customer satisfaction.

Despite the many advantages, robots and artificial intelligence have negative implications as well. The negative effect of automation will likely be greatest for lower-wage workers, and that there is a risk that AI-driven automation will increase the wage gap between less-educated and more educated workers, thus increasing economic inequality. Job loss is a major concern of both individuals and the governments of nations. A Bloomberg report estimates that, globally, up to 120 million workers will have to be retrained due to the impact AI changing [7]. Another study points out that for every 100 jobs replaced, AI only creates 10 new jobs [8], which also require a new skill set. As machines become more readily available, lower waged, lower skilled individuals become more redundant, and even if their jobs are not replaced, their wages may get suppressed.

The fear of increased cybercrime is also a significant threat, as AI becomes more widely used. The increased use of machines results in increased opportunities for hacking, data breaches, stolen data and privacy loss. Privacy loss is a major concern as smart surveillance systems, including stationary video cameras and drone based cameras, which are paired with AI driven sophisticated facial recognition capabilities. To counter privacy threats, New York City, for example, is currently contemplating the regulation of the use of facial recognition by landlords and business owners [5].

## **CONCLUSION & SUMMARY**

Smart Robots will lead to the automation of tasks that were either not automated before, or might be used to improve an older form of automation. It can also take a manual task and provide automation to certain parts of the task, hence enhancing the efficiency and effectiveness of the task. Smart-Robots will likely increase productivity and create wealth for the owners of capital, but it may also affect particular types of jobs in different ways, reducing demand for certain skills that can be automated, while also increasing demand for other skills that are complementary to AI. It is hoped that the implementation of robots and AI, instead of ending jobs and displacing workers, will redistribute jobs, and thus relieve humans of mundane or dangerous work.

Businesses that fail to utilize AI and smart robots might indeed be eradicated from their markets, as they can potentially be burdened by disadvantages that their AI-based competitors do not face. Companies who do not deploy smart robotics can be prone to slower, less reliable manufacturing practices, more quality control issues, higher costs, and likely will fall behind competitors.

The implementation of robotics and artificial intelligence have enabled many business processes to become highly automated and cost efficient. Increased profits for business, improved medical diagnostics, and self-driving vehicles are some of the major advantages of robotics adoption. Robots and AI are transforming and improving a variety of industries, and both businesses and individuals must be prepared for a very different future.

## **REFERENCES**

References available upon request from Santosh Venkatraman