


# Chapter 10

## Robotics, Automation, and Artificial Intelligence's Future in the Automotive Sector

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### **ABSTRACT**

*AI is now an everyday aspect of many people's daily lives worldwide. Businesses have more potential to use AI to optimise some risky or repetitive processes that were previously handled by humans, but people are often afraid of AI due to concerns about privacy and lost job opportunities. Meanwhile, AI has also become a cross-cultural phenomenon. Perceptions are thought to change between people and cultures, and advanced and emerging economies may have different ideas about how AI will develop in the future. Therefore, in order to comprehend the relationship between culture and the usage of AI, it is crucial to look into individual or organisational*

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*variances in attitudes towards and trust in AI based on cultural differences.*

## **1.0 INTRODUCTION**

Numerous sectors employ robots and automation to automate jobs that humans are not very adept at (IBM, 2024). Whether it's performing the same task repeatedly in the same way, like making crucial and intricate machine parts, or tasks that take too long to complete well, like challenging mathematical computations. The workplace is swiftly and extensively changing due to artificial intelligence (AI), which is also drastically changing the dynamics of many different businesses. The impact of AI technologies on labour markets is growing as more and more organisations use them.

Artificial Intelligence (AI) is the ability of robots to do cognitive activities that are similar to those performed by humans. These can include perception, sensing, problem-solving, creativity, and decision-making, as well as the mechanisation of tasks like moving and managing objects. AI is regarded as the most important and disruptive new technology for large corporations in the first two decades of the twenty-first century (Benbya et al., 2020). However, aside from software startups, smaller firms seldom employ the technology at all, and for large corporations, it is still in its infancy. According to polls, fewer than half of large companies seem to be engaged in major AI projects, albeit this percentage is slowly increasing.

The automobile industry's automation is constantly improving (Innovative automation, 2024). Because automation increases productivity and speeds up work compared to a human labour that cannot keep up with the machines, the car industry has come to rely on technology for its assembly lines. The automotive sector has been at the forefront of automation, and in the future, sophisticated robotics will open up even more lucrative opportunities for the sector.

The automotive sector has embraced artificial intelligence, which has become a manufacturing norm (Srivastava, 2024). The automotive sector has improved the performance statistics of its vehicles and streamlined its manufacturing processes through the use of artificial intelligence. The potential for autonomous vehicles to become a reality is one of the reasons the automobile industry is concentrating on and investing in cutting-edge artificial intelligence. Automakers are concentrating on electric, hybrid, and self-driving vehicles. The automotive industry's future will be shaped by these developments and new automobiles.

Automotive production processes are drastically changed by the incorporation of Industry 4.0 technologies, which improve accuracy and efficiency. As noted in the analysis of global supply chains, firms can optimise their production workflows by incorporating Artificial Intelligence (AI) and Machine Learning (ML) through real-time data analytics and predictive maintenance. This change minimises waste

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