


Chapter 5

Training and Upskilling Employees for Generative AI–Powered Industry 4.0 Supply Chains

Smit B. Kacha


 <https://orcid.org/0009-0000-7166-8284>

Marwadi University, India

Mahi Chheladiya


Marwadi University, India

Meeta Joshi

 <https://orcid.org/0000-0002-8162-8187>

Marwadi University, India

Janvi Bhindi

 <https://orcid.org/0000-0003-1726-8452>

Marwadi University, India

ABSTRACT

The advent of Industry 4.0 has revolutionized supply chains by integrating advanced technologies such as IoT, Big Data, AI and Generative AI, in particular, automates and enhances key supply chain functions like demand forecasting, inventory management, production scheduling, and logistics. This book proposal highlights the necessity for a skilled workforce to leverage these AI systems for optimal efficiency. It emphasizes the need for substantial investment in training and upskilling programs to prepare employees for AI-enabled roles. Addressing the existing skills gap, the proposal outlines strategies to bridge this gap through targeted educational

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initiatives and industry partnerships. It also discusses the challenges in fostering AI talent, stresses the importance of collaborative efforts among stakeholders to ensure successful AI integration. This comprehensive approach aims to equip the workforce with essential digital skills.

INTRODUCTION

Industry 4.0 is also known as the fourth Industrial Revolution, this revolution caused a major shift in manufacturing and industrial processes through the integration of digital technologies such as the Internet of Things (IoT), Big data analytics, Blockchain technology, Robotics as well as Artificial intelligence (AI) (Lasi, Fettke, Kemper, Feld, & Hoffmann, 2014). In the world, the food industry is a vital sector for all countries like India, which is experiencing the growth of economic as well as Infrastructure development and also not left behind for these major revolutions in the food industries, as the consumer's expectations are evolving. The global supply chain is becoming too complex the fourth revolution's technology gives great and good solutions to enhancement in food production, quality, and sustainability as well as distribution (Tzounis, Katsoulas, & Fountas, 2017). By implementing this technology in day-to-day work in the food industry, companies are optimizing their operations in production and distribution, reducing waste, ensuring food quality and safety, also meeting consumer's demands.

Adaptation of the fourth revolution's technology in the food industry gives noticeable change in supply chain management, giving real-time monitoring and decision-making. For instance, IoT provides real-time monitoring of the temperature and humidity of food products during transportation, so now companies can maintain a good environment for food products and give assurance for a better quality of food products and a greater life span (Astill et al., 2019). With the help of robotics companies becomes much faster in production, in distributions of food products, packaging, shorting, and quality checks. Big data analytics helps to predict consumer demand and market trends these all help companies make better strategies to align with the demands of consumers as a result of all this good integration, the fourth revolution is giving fast and efficient evolution of the food supply chain (Wang, Gunasekaran, Ngai, & Papadopoulos, 2016).

Generative AI is a major and very crucial part of this revolution; it's a subset of Artificial intelligence, and it helps in the generation of new data, recognition of patterns, and matching consumer demand (Goodfellow et al., 2014). Generative AI has the capability of creating entirely new data set or optimizing existing data set, this data helps create trends pattern, forecast the future demand and consumer's

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