

# Chapter 8

## The Role of Emotional Intelligence in Industry 5.0

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### ABSTRACT

*Emotional intelligence (EI) is key to the success of Industry 5.0's combination of AI, digital technologies, and human cooperation. This chapter offers an overview of EI's pivotal role in shaping Industry 5.0, examining its influence on organizational dynamics, team interactions, and leadership. It explores EI's impact on decision-making, algorithmic processes, ethics, and crisis management. By delving into the essential function of EI, this work presents an overview that highlights its impact on team dynamics, leadership styles, and overall organizational dynamics. Furthermore, the study examines how EI influences crisis management, algorithmic processes, ethical considerations, and decision-making within Industry 5.0 environments. Additionally, this chapter serves as a foundation for future investigations regarding strategic approaches, smart system designs, and leadership development pertinent to Industry 5.0. Through both scholarly findings and practical examples, this chapter provides a well-grounded comprehension of EI's importance during this transformative era.*

### INTRODUCTION

The ongoing progression of industrial frameworks has brought us to the threshold of a groundbreaking era known as Industry 5.0. Advancing beyond the automated structures of Industry 4.0, Industry 5.0 introduces a new era of intelligent manufacturing, highlighting the essential significance of human-machine collaboration. This introduction sets the stage for an exploration of the crucial connection between

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emotional intelligence (EI) and the expanding domain of Industry 5.0 (Broo, D. G. et al., 2022; Pizoń, J., & Gola, A. 2023).

Industry 5.0 represents a revolutionary shift in manufacturing that goes beyond the automation and efficiency paradigms of its predecessor. Essentially, it envisions a holistic integration of advanced technologies like artificial intelligence, robotics and the Internet of Things, with a renewed emphasis on human engagement. This new paradigm aims to establish symbiotic connections between humans and machines, cultivating an atmosphere where the distinct capabilities of both can be leveraged for unparalleled productivity and creativity (Vrontis, D et al., 2022).

Emotional intelligence, grounded in the comprehension and regulation of personal emotions and those of others, emerges as a pivotal element in the prosperity of Industry 5.0. This chapter delves into the diverse facets of emotional intelligence, investigating its effects on individual and group behaviors within the industrial sphere. Through an analysis of how emotional intelligence impacts communication, decision-making and collaboration, an endeavor is undertaken to reveal its capacity to mold the dynamics of Industry 5.0.

This overview is driven by a set of defined objectives aimed at providing a comprehensive understanding of the role of emotional intelligence in Industry 5.0. Our primary goals include elucidating the contextual background of Industry 5.0, highlighting its defining features and the trajectory of its development. Then to investigate the function of emotional intelligence within the framework of Industry 5.0, exploring its implications for human-machine interactions, leadership styles and overall workforce dynamics. And finally, identifying and analysing the interconnectedness between emotional intelligence and technological advancements, emphasizing the need for a balanced integration that optimizes both human and machine capabilities.

Through the pursuit of these objectives, this overview seeks to contribute valuable insights to academic discourse and provide practical implications for stakeholders navigating the uncharted waters of Industry 5.0.

## **FOUNDATIONS OF INDUSTRY 5.0**

To appreciate the relevance of emotional intelligence within Industry 5.0, it is imperative to acquire a firm grasp of the fundamentals underpinning this progressive industrial paradigm. Industry 5.0 constitutes a theoretical construct that evolves from the tenets of Industry 4.0, accentuating the amalgamation of human intellect with sophisticated technologies to stimulate innovation and productivity across industrial procedures (Carayannis, E. G., & Morawska-Jancelewicz, J. 2022). In contrast to Industry 4.0, which predominantly concentrates on automation, connectivity and data-based decision-making, Industry 5.0 strives to reintroduce human competencies and ideologies into the manufacturing and industrial milieu. This transformation embodies a shift toward more humane strategies regarding technological implementation within the industrial domain.

The key features as shown in Figure 1, of Industry 5.0 include the orchestration of intelligent systems, human-machine collaboration, Personalization and Customization, Skill Development and Training, Ethical and Social Responsibility and the convergence of physical and digital realms as shown in Figure 1. Additionally, Industry 5.0 places a heightened emphasis on customization, sustainability and flexibility, setting it apart from its predecessors.

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