DeepScience

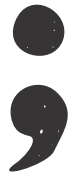
Intelligent Industry Ecosystems and Manufacturing Renaissance:

Designing Autonomous Production, Supply Orchestration, and Connected Retail Infrastructure

Raviteja Meda

Intelligent Industry Ecosystems and Manufacturing Renaissance: Designing Autonomous Production, Supply Orchestration, and Connected Retail Infrastructure

Raviteja Meda
Lead Incentive Compensation Developer



DeepScience

Published, marketed, and distributed by:

Deep Science Publishing
USA | UK | India | Turkey
Reg. No. MH-33-0523625
www.deepscienceresearch.com
editor@deepscienceresearch.com
WhatsApp: +91 7977171947

ISBN: 978-93-49910-21-8

E-ISBN: 978-93-49910-35-5

https://doi.org/10.70593/978-93-49910-35-5

Citation: Meda, R. (2025). *Intelligent Industry Ecosystems and Manufacturing Renaissance: Designing Autonomous Production, Supply Orchestration, and Connected Retail Infrastructure*. Deep Science Publishing. https://doi.org/10.70593/978-93-49910-35-5

Preface

The fourth industrial revolution has revealed a manufacturing renaissance marked by digital changes, automation and artificial intelligence. The book examines the dynamic interaction between the book, intelligent industry ecosystem and manufacturing renaissance, cyber-physical systems, autonomous production lines, intelligent supply chains and connected retail infrastructure. It presents a broad roadmap to design flexible, adaptive, and intelligent manufacturing ecosystems that rapidly reacts to market demands and stability goals. The heart of this Renaissance, competent technologies-artificial intelligence (AI), machine learning (ML), Internet of Things (IOT), Industrial Internet of Things (IIOT), Cloud Computing, Edge Computing, Digital Twin, Big Data Analytics, Associate robotics, and cyber-positive systems. The chapters of this book addressed historical development of these techniques, current applications, case studies and future trends in running autonomous construction and intelligent supply orchestation.

This book examines important subjects such as important topics such as distributed manufacturing, on-demand production, cloud-essential manufacturing platforms, data security, human-masine cooperation, and enhanced reality in the manufacturing environment. By offering multi -disciplinary approaches from engineering to policy - its objective is to bother academics, industry and government in advancing industry 4.0 and smart factory paradigms. With focus on high-effects industrial changes, the task involves globally recognized research and practical implementation to support sustainable innovation. We believe that it will serve as a valuable reference for researchers, industry professionals, and policy makers.

Raviteja Meda

Table of Contents