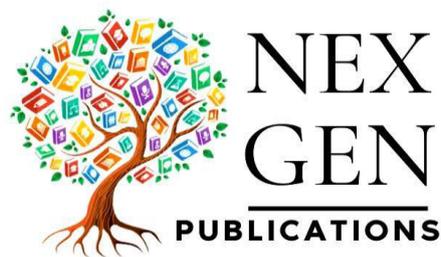# Mastering AI in Supply Chains :

A Comprehensive Guide to Intelligent Logistics

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Mastering AI in Supply Chains: A Comprehensive Guide to Intelligent Logistics

Mastering AI in Supply Chains: A Comprehensive Guide to Intelligent Logistics

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DISCLAIMER

Preface

The rapid evolution of digital technologies has fundamentally transformed the way organizations design, manage, and optimize their supply chains. Among these technologies, Artificial Intelligence (AI) has emerged as a powerful force capable of reshaping traditional logistics systems into intelligent, adaptive, and highly efficient networks. The integration of AI into supply chain management is no longer a futuristic concept; it has become a practical necessity for organizations seeking resilience, efficiency, and competitive advantage in an increasingly complex global market.

The book Mastering AI in Supply Chains: A Comprehensive Guide to Intelligent Logistics is designed to provide a structured and comprehensive understanding of how AI technologies are revolutionizing supply chain operations. From predictive analytics and demand forecasting to autonomous logistics and real-time decision-making, AI offers new opportunities to overcome many of the persistent challenges faced by modern supply chains, including demand volatility, operational inefficiencies, and disruptions in global trade networks.

This book aims to bridge the gap between theoretical knowledge and practical application. It explores the fundamental concepts of supply chain management while demonstrating how advanced technologies such as machine learning, data analytics, automation, and intelligent algorithms can be applied to enhance planning, inventory management, transportation, and logistics coordination. Through a systematic discussion of emerging tools, case-based insights, and implementation strategies, readers will gain a deeper understanding of how AI-driven systems can create smarter, more responsive supply chain ecosystems.

The content of this book is intended for students, researchers, industry professionals, and policymakers who seek to understand the growing intersection between artificial intelligence and supply chain management. By combining conceptual foundations with contemporary developments, this work attempts to present a balanced perspective on both the opportunities and challenges associated with AI adoption in logistics.

Ultimately, this book seeks to encourage innovation, critical thinking, and strategic planning in the field of intelligent supply chains. As global commerce continues to evolve, the ability to leverage AI effectively will become a defining factor in building resilient and future-ready logistics systems.

Ackowledgement

We would like to express our sincere gratitude to all those who contributed, directly and indirectly, to the completion of this book, Mastering AI in Supply Chains: A Comprehensive Guide to Intelligent Logistics. The development of this work has been a collaborative journey shaped by the insights, encouragement, and support of many individuals and institutions.

First and foremost, we extend our heartfelt appreciation to the scholars, researchers, and industry practitioners whose pioneering work in artificial intelligence, supply chain management, and logistics has inspired the ideas presented in this book. Their research, innovations, and practical experiences have laid the intellectual foundation that guided the preparation of this manuscript.

We are also deeply grateful to academic colleagues and professional peers who provided valuable suggestions, constructive feedback, and intellectual discussions during various stages of the writing process. Their perspectives helped refine the concepts, strengthen the arguments, and ensure the relevance of the topics addressed in this book.

Special thanks are due to the institutions, libraries, and digital research platforms that provided access to a vast body of literature on artificial intelligence, logistics systems, data analytics, and supply chain innovation. Without these knowledge resources, the development of a comprehensive and interdisciplinary work such as this would not have been possible.

We would also like to acknowledge the contribution of students and emerging researchers whose curiosity about AI-driven supply chains continues to motivate scholarly exploration in this rapidly evolving field. Their questions and enthusiasm have encouraged us to present complex technological concepts in a structured and accessible manner.

Finally, we express our deepest gratitude to our families and well-wishers for their constant encouragement, patience, and unwavering support throughout the process of researching and writing this book. Their understanding and motivation have been invaluable in bringing this work to completion.

We hope that this book will contribute meaningfully to the growing discourse on intelligent logistics and AI-enabled supply chains, and serve as a useful resource for researchers, students, and professionals alike.

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About the Authors

Dr. Riddhi Garg is a distinguished academician serving as Associate Professor and Head of the Department of Mathematics, School of Sciences, IFTM University, Moradabad. She has rich experience in teaching, research, and academic leadership. Her primary area of research is Operations Research, with a focus on optimization and decision-making models. Dr. Garg has contributed to scholarly research and curriculum development in mathematics. She is actively involved in mentoring students and promoting research-oriented learning.

Dr. Rajesh is an Assistant Professor in the department of Commerce and Management at I.G. Government P.G. College, Tohana (Haryana) with academic and research interests in corporate governance, financial management, supply chain management, and insurance studies. He has qualified JRF and pursuing his Ph.D in financial management from CDLU Sirsa Haryana. He also explores governance mechanisms within supply chain networks and the role of insurance in risk mitigation and organizational sustainability. He has strong expertise in quantitative research methodologies and econometric analysis, especially panel data techniques using statistical software such as Stata and R studio etc. Sh. Rajesh seeks to contribute to the advancement of logistics and supply chain management, corporate governance practices, risk management frameworks, and evidence-based policy formulation in emerging economies.

Dr. Saloni Chinmay Desai, is an experienced Associate Professor (Operations & HR Management) with a demonstrated history of working in educational field at Bharti Vidyapeeth Institute of Management Studies & Research CBD Belapur, Navi Mumbai. She is Skilled in Lecturing, Counselling, Administration, Mentoring Management. Strong education professional with Ph. D. in Management. Her qualification is MMS – Operations Management Mumbai University. MBA-HR from ITM B School, Diploma in Personnel Management from Welingkars B School & Diploma in Computer Software from RVTI, Mumbai, Govt. of India. She has total 27 years of experience (15 years of Industrial experience & 12 years in Academics – MMS Course of Mumbai University).

She has several publication to her credit & written more than 25 Research Papers in national & international journals of repute. She has also participated in more than 20 national & international conferences, seminars, workshops, FDP etc. She has been awarded Best research paper awards at National & International conferences at various colleges. From last 12 years she has consistently achieved remarkable milestones, demonstrating her exceptional track record and gathering recognition for her accomplishments. Her Search areas are Manufacturing, Production & SCM, and Operations Management. She has conducted many workshops for Disaster Preparedness & Awareness for Ph.D. & Post graduate Students & local Community

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ABOUT THE BOOK:

Mastering AI in Supply Chains: A Comprehensive Guide to Intelligent Logistics explores how artificial intelligence is transforming modern supply chain and logistics systems. The book explains how technologies such as machine learning, predictive analytics, and automation help organizations improve demand forecasting, inventory management, and operational efficiency.

It provides an overview of how AI-driven tools enable smarter decision-making, enhance supply chain resilience, and optimize logistics operations. Designed for students, researchers, and professionals, the book offers insights into the growing role of intelligent technologies in shaping the future of supply chain management.