DIGITAL SUPPLY NETWORKS

TRANSFORM YOUR SUPPLY CHAIN AND GAIN COMPETITIVE ADVANTAGE WITH DISRUPTIVE TECHNOLOGY AND REIMAGINED PROCESSES

AMIT SINHA | EDNILSON BERNARDES
RAFAEL CALDERON | THORSTEN WUEST

CONTENTS

FOREWORD

With more than two decades of professional experience leading supply chain transformations, I have witnessed the transformation of the supply chain itself from a business support function to the center of an organization's strategy. For the prosperity achieved in the past 25 years, along with the higher standard of living across the globe, supply chain management (SCM) has played a crucial role by optimizing efficiency, enhancing productivity, and reducing waste. It would not be an overstatement to say that the supply chain has shaped the world we live in.

The technological progress that happened over the past three decades allowed organizations to create a connected supply chain of business activities, enabling end-to-end planning and execution of processes and workflows. However, through recent technological and process advancements, the basic idea of supply chain management is outdated. Adoption of advanced technologies consisting of sensors, machine learning, artificial intelligence, blockchain, and robotics have facilitated end-to-end visibility, control, and automated decision making. In this new way of working, a traditional chain will be replaced by the always-on, always-connected, transparent, dynamic networks. We can call this a "digital supply network," or DSN.

As the global co-founder of Digital Supply Networks, at Deloitte, I have helped many organizations achieve tremendous value through the adoption of DSN-enabling processes. This book is intended to provide comprehensive knowledge about the DSN processes and associated technologies as well as an adoption playbook. I got the opportunity to share my thoughts and help the author team by reviewing the content

and providing feedback. I am delighted by the content quality and coverage of this book. I must congratulate the author team—Amit Sinha, Ednilson Bernardes, Rafael Calderon, and Thorsten Wuest— for putting together this comprehensive text on DSN.

At present, we certainly find ourselves in an intricately complicated time, one that has been disrupted in the blink of an eye by an unforeseen virus. As of this writing, COVID-19 has brought societies to a halt, placing many leading economies into self-imposed "comas" to stunt the spread of the coronavirus and avoid overwhelming healthcare systems. Economies are currently going through the painful task of re-opening, balancing the potential for more fatalities with the need to restart activities to avoid further economic catastrophe. And let us not forget the tremendous toll this virus is having on the human workforce that participates in the many industries that feed the economy.

The current pandemic has shed a glaring light on the vulnerabilities of traditional supply chains across industries—from healthcare to retail, industrial manufacturing to pharmaceutical. Raw materials and components stopped shipping. Supplies were unable to reach their destinations due to canceled air flights and trucking capacity. What started in a few distinct geographies quickly blossomed into a domino-effect of supply disruptions, grinding production to a halt across regions and sectors. If there ever was a watchword for the current environment, it would be *resilience*.

Resilience can mean many things, but at its core, it defines the ability of an organization or organism, to recover from a shock to the system, rapidly adapting and adjusting to the new circumstances. Many companies have been on the road toward building resilience in their supply chains for several years, preceding this current massive shock. They have added digital technologies like forecasting and even artificial intelligence to help connect activities across the chain, bringing demand and supply more closely in sync through technologies and processes that enable greater visibility and planning. However, despite these efforts, the vast majority of supply chains are still falling far short of the end state of resilience, in many ways.

Now, more than ever, it is apparent that building resilience into the supply chain is a business imperative—along with the need to replace the "chain" and its linear approach with a "network" that reflects the fluid nature of the business that all companies experience. Those companies that fail to do so will likely not survive this current crisis.

The current wave of digital transformation is changing the business rules across the world. I believe that the most crucial part of digital

transformation or any business transformation is the consumer and the solutions businesses provide to its customers. In addition, I visualize DSN playing a vital role in providing safety, quality, value, and innovation to all stakeholders. The intelligence possibilities for machines through artificial intelligence allows business teams to run an intelligently automated enterprise through total visibility and fact-based decision making. The dynamic decision making in this intricately connected world needs to consider multiple factors to achieve the required adaptability, responsiveness, and resilience.

With the industry and institution collaboration achieved for this book, it is relevant to executives, managers, consultants, students, and academics. The progress from SCM to DSN is well articulated along with the traditional SCM processes and reimagined DSN processes. I recommend this book for executives who want to understand the basic concepts of advance technologies like data analytics, machine learning, artificial intelligence, robotics, and blockchain. The text elucidates the basics of these technologies, managerial applications, and how to harness the power of those technologies. The real-world examples shared throughout the chapters that define the digital supply network, introduce the technologies that power it, and describe its measurable business impact are inspirational for companies of all sizes and types. I was able to share my ideas for the DSN playbook, which has been captured well through further research and the expertise of the author team.

We are seeing positive examples of digital supply networks in operation today that are helping companies respond to the current crisis and demonstrate the agility that is critical for survival. I am hopeful that the current crisis we are experiencing will serve as the wake-up call for business leaders to lift the covers off their supply chains and build a sustainable strategy for creating a digital supply network that will engender the resilience every company needs to not only survive but *thrive*.

I invite you to a tremendous learning journey on digital transformation and digital supply networks through the wisdom shared in this book!

Adam Mussomeli
Principal, Supply Chain & Network Operations Leader
Deloitte Consulting LLP