ESSENTIALS of Supply Chain Management

Fourth Edition

Essentials Series

The Essentials Series was created for business advisory and corporate professionals. The books in this series were designed so that these busy professionals can quickly acquire knowledge and skills in core business areas.

Each book provides need-to-have fundamentals for those professionals who must:

- Get up to speed quickly, because they have been promoted to a new position or have broadened their responsibility scope.
- Manage a new functional area.
- Brush up on new developments in their area of responsibility.
- Add more value to their company or clients.

Books in this series include:

Essentials of Accounts Payable by Mary S. Schaeffer Essentials of Balanced Scorecard by Mohan Nair Essentials of Business Ethics by Denis Collins Essentials of Business Process Outsourcing by Thomas N. Duening and Rick L. Click Essentials of Capacity Management by Reginald Tomas Yu-Lee Essentials of Cash Flow by H.A. Schaeffer, Jr. Essentials of Corporate and Capital Formation by David H. Fater Essentials of Corporate Fraud by Tracy L. Coenen Essentials of Corporate Governance by Sanjay Anand Essentials of Corporate Performance Measurement by George T. Friedlob, Lydia L.F. Schleifer, and Franklin J. Plewa, Jr. Essentials of Cost Management by Joe and Catherine Stenzel Essentials of Credit, Collections, and Accounts Receivable by Mary S. Schaeffer *Essentials of CRM: A Guide to Customer Relationship Management by* Bryan Bergeron Essentials of Enterprise Compliance by Susan D. Conway and Mara E. Conway Essentials of Financial Analysis by George T. Friedlob and Lydia L. F. Schleifer Essentials of Financial Risk Management by Karen A. Horcher Essentials of Foreign Exchange Trading by James Chen Essentials of Intellectual Property, Second Edition by Alexander I. Poltorak and Paul J. Lerner

Essentials of Knowledge Management by Bryan Bergeron Essentials of Licensing Intellectual Property by Paul J. Lerner and Alexander I. Poltorak Essentials of Managing Corporate Cash by Michele Allman-Ward and James Sagner Essentials of Managing Treasury by Karen A. Horcher Essentials of Online Payment Security and Fraud Prevention by David Montague Essentials of Patents by Andy Gibbs and Bob DeMatteis Essentials of Payroll Management and Accounting by Steven M. Bragg Essentials of Risk Management in Finance by Anthony Tarantino with Deborah Cernauskas Essentials of Sarbanes-Oxley by Sanjay Anand Essentials of Shared Services by Bryan Bergeron Essentials of Supply Chain Management by Michael Hugos Essentials of Technical Analysis for Financial Markets by James Chen Essentials of Trademarks and Unfair Competition by Dana Shilling Essentials of Venture Capital by Alexander Haislip Essentials of Working Capital Management by James Sagner Essentials of XBRL by Bryan Bergeron

For more information on any of the above titles, please visit

www.wiley.com.

ESSENTIALS of Supply Chain Management

Fourth Edition

Michael Hugos



Copyright © 2018 by John Wiley & Sons, Inc. All rights reserved.

Published by John Wiley & Sons, Inc., Hoboken, New Jersey.

Published simultaneously in Canada.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher, or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 646-8600, or on the Web at www.copyright.com. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at http://www.wiley.com/go/permissions.

Limit of Liability/Disclaimer of Warranty: While the publisher and author have used their best efforts in preparing this book, they make no representations or warranties with respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales materials. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor author shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

For general information on our other products and services or for technical support, please contact our Customer Care Department within the United States at (800) 762-2974, outside the United States at (317) 572-3993, or fax (317) 572-4002.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books. For more information about Wiley products, visit our website at www.wiley.com.

Library of Congress Cataloging-in-Publication Data:

Names: Hugos, Michael, author.
Title: Essentials of supply chain management / Michael Hugos.
Description: Fourth Edition. | Hoboken :Wiley, 2018. | Series: Essentials series | Revised edition of the author's Essentials of supply chain management, 2011. | Includes index. |
Identifiers: LCCN 2017056763 (print) | LCCN 2017058101 (ebook) | ISBN 9781119464464 (epub) | ISBN 9781119461104 (paperback) | ISBN 9781119464457 (ePDF)
Subjects: LCSH: Business logistics. | BISAC: BUSINESS & ECONOMICS / Decision-Making & Problem Solving.
Classification: LCC HD38.5 (ebook) | LCC HD38.5 .H845 2018 (print) | DDC 658.7—dc23
LC record available at https://lccn.loc.gov/2017056763

Cover Design: Wiley Cover Image: © FarukUlay/Getty Images

Printed in the United States of America.

10 9 8 7 6 5 4 3 2 1

To my wife, Venetia

Contents

		Preface	xi
Chapter	1	Key Concepts of Supply Chain Management	1
Chapter	2	Supply Chain Operations: Planning and Sourcing	41
Chapter	3	Supply Chain Operations: Making and Delivering	77
Chapter	4	New Technology Changes How Work Is Done	115
Chapter	5	Metrics for Measuring Supply Chain Performance	159
Chapter	6	Supply Chain Coordination	195
Chapter	7	Supply Chain Innovation for the Real-Time Economy	223
Chapter	8	Defining Supply Chain Opportunities	255
Chapter	9	Creating Supply Chains for Competitive Advantage	287
Chapter	10	Promise of the Real-Time Supply Chain	319
		About the Author	337
		Index	339

Preface

My intention in this book is to speak to a wide audience of business, technical, and professional people and others looking to understand this increasingly import area of activity. I provide a clear framework for understanding supply chain theory, operations, and opportunities. I then build on that framework and show ways to create supply chains with the performance levels needed for success in this real-time global economy we live in.

I know you are busy and your time is valuable. So, I've worked hard to get to the point quickly and explain things clearly and concisely. This book provides a framework to understand the structure and operation of any supply chain. It also provides guidance and insights for how to make good use of the flood of new supply chain technologies. Ideas are provided for combining technology, people, and business processes to deliver greater levels of supply chain performance.

Chapters 1, 2, and 3 provide an introduction to the basic principles and practices that drive supply chain operations. Chapters 4, 5, and 6 discuss technologies, metrics, and techniques that are making significant impacts on the way supply chains are designed, monitored, and managed.

Chapter 7 is an exploration of how new technology can be combined with supply chain best-practices such as sales and operations planning (S&OP) to deliver a new level of supply chain performance through effective collaboration between companies working together in supply chains. The potential for using cloud computing and presently

Preface

available software applications to build real-time supply chain collaboration platforms is presented.

Chapters 8 and 9 provide a pragmatic approach based on personal experience for defining supply chain opportunities, and designing and building systems to effectively respond to those opportunities. I present two case studies and show how companies can develop supply chain capabilities to support their evolving business goals.

The last chapter, Chapter 10, outlines opportunities for individual companies and alliances of companies to work together and employ the power of the self-adjusting feedback loop to drive real-time operations. Real-time and collaborative supply chains are the next step in the evolution of supply chain management. Self-adjusting supply chains and the economic growth and stability they make possible are central to the creation and preservation of wealth in this century.

What I say in this book is based on decades of personal experience in building and operating supply chains, plus many conversations with fellow practitioners and researchers. I am also much influenced by reading the works of other authors whom I quote and acknowledge in these chapters.

> MICHAEL HUGOS Chicago, IL USA www.scmglobe.com mhugos@scmglobe.com