

Global Logistics

8th Edition

Global Logistics

New directions in supply chain
management

Edited by Edward Sweeney and
Donald Waters



Publisher's note

Every possible effort has been made to ensure that the information contained in this book is accurate at the time of going to press, and the publisher and authors cannot accept responsibility for any errors or omissions, however caused. No responsibility for loss or damage occasioned to any person acting, or refraining from action, as a result of the material in this publication can be accepted by the editor, the publisher or the authors.

Sixth edition published in 2010

Seventh edition published in 2014

Eighth edition published in Great Britain and the United States in 2021 by Kogan Page Limited

Apart from any fair dealing for the purposes of research or private study, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the publishers, or in the case of reprographic reproduction in accordance with the terms and licences issued by the CLA. Enquiries concerning reproduction outside these terms should be sent to the publishers at the undermentioned addresses:

2nd Floor, 45 Gee Street
London
EC1V 3RS
United Kingdom
www.koganpage.com

122 W 27th St, 10th Floor
New York, NY 10001
USA

4737/23 Ansari Road
Daryaganj
New Delhi 110002
India

Kogan Page books are printed on paper from sustainable forests.

© Donald Waters, 2010

© Donald Waters and Stephen Rinsler, 2014

© Edward Sweeney and Donald Waters, 2021

The right of Edward Sweeney and Donald Waters and of each commissioned author of this work to be identified as an author of this work has been asserted by them in accordance with the Copyright, Designs and Patents Act 1988.

Hardback 978 1 3986 0002 7
Paperback 978 1 3986 0000 3
eBook 978 1 3986 0001 0

British Library Cataloguing-in-Publication Data

A CIP record for this book is available from the British Library.

Library of Congress Cataloging-in-Publication Data

[to follow]

Typeset by Hong Kong FIVE Workshop, Hong Kong
Print production managed by Jellyfish
Printed and bound by CPI Group (UK) Ltd, Croydon CR0 4YY

CONTENTS

About the contributors xii

Preface xxi

Acknowledgements xxvi

01 Re-thinking supply chain strategy 1

Martin Christopher

Introduction 1

The search for agility 3

The need for end-to-end planning 4

Building structural flexibility into the supply chain 5

Supply chain orchestration 7

The changing risk profile 8

Achieving resilience 10

Conclusion 12

References 13

02 Linking supply chain management to financial performance 14

Heimo Losbichler and Farzad Mahmoodi

Introduction 14

Financial performance and its drivers 15

Linking supply chain management and financial performance 20

Framework to identify initiatives that create the most shareholder value 24

Difficulties in improving supply chain financial performance 31

References 33

03 Supply chain risk management: finance – the forgotten perspective? 36

Carolyn Somorowsky and Lars Stemmler

Introduction 36

Risk management and the supply chain: an established perception! 37

From operational resilience to financial stability 40

Financing investments collaboratively: reducing the risk of supply chain breakdowns	46
Conclusions	48
Notes	49
References	50

04 Supply chain vulnerability and resilience 52

Alan Braithwaite

Black swans: long tails and unintentional self-harm	52
Probability versus impact	57
Mapping the landscape of risk and vulnerability	57
The evolution of supply chain risk management thinking	60
The financial impact of supply chain disruptions	62
Frameworks for designing for resilience	65
Some examples of disasters and the implications for resilience	72
Digital toolsets and services for risk management	74
In conclusion: supply chain resilience is a capability	77
References	77

05 Fulfilling customer needs in the 2020s with marketing and logistics 79

David B Grant

Introduction	79
Logistics customer service today	82
Logistics customer service elements and issues	83
Logistics customer service strategies	86
Summary	91
References	92

06 New procurement directions in supply chain management 95

Louise Knight, Frederik Vos and Joanne Meehan

Perspectives on procurement	95
Procurement directions for ‘improved business-as-usual’	101
New procurement directions for ‘business-not-as-usual’	108
Synthesizing ‘improving business-as-usual’ and ‘business-not-as-usual’ perspectives	111
References	112

07 Maximizing capacity utilization in freight transport 119*Alan McKinnon*

Introduction 119

Assessing the utilization of freight transport capacity 120

Factors constraining capacity utilization 125

Measures to improve capacity utilization 129

Conclusion 137

References 137

08 Retail logistics 142*John Fernie*

Introduction 142

The evolution of the logistics concept 143

Logistics and competitive strategy in retailing 146

The internationalization of the retail supply chain 149

CSR and sustainable supply chains 151

The online revolution 153

The future 158

References 160

09 Trends and strategies in global logistics and supply chain management 164*Christian F Durach and Frank Straube*

Introduction 164

Research design and research sample 165

Key trends and strategies 168

Strategic delivery reliability 183

Digital transformation in logistics 185

Conclusion and outlook 187

Notes 188

References 188

10 Global sourcing and supply 190*Alan Braithwaite*

Global trade – economic lifeblood 190

The product economics that have driven global sourcing 193

Sustainability and the UN'S SDGS 197

The key features of 'good practice' in global sourcing 199

Emerging risks and their implications for future sourcing strategies	203
Emerging technologies and their impacts	204
Re-shoring, near-shoring and supply chain reconfiguration	206
In conclusion	208
References	208

11 Supply chain relationships: the foundation of success 210

Patrick Daly

The historical strategic context	210
The importance of inter-organizational relationships	214
The importance of clear objectives	217
Relevant metrics to measure progress towards achieving objectives	222
Summary	227
References	229

12 Delivering sustainability through supply chain management 213

Maria Huge-Brodin and Edward Sweeney

Introduction	231
Sustainability as corporate performance	232
How supply chains can foster sustainable development	235
Sustainable supply chains: contemporary and future challenges	239
Some concluding comments	243
References	244

13 Greening of logistics: cutting pollution and greenhouse gas emissions 246

Alan McKinnon

Introduction	246
Emissions from logistics	237
Managerial and analytical frameworks	252
Repowering logistics with cleaner, low-carbon energy	255
Raising the energy efficiency of logistics operations	259
Increasing the utilization of logistics assets	261
Shifting freight to greener transport modes	262

Reducing the demand for freight movement 264
Conclusions 265
References 266

14 People powering contemporary supply chains 270

John Gattorna

Introduction 270

Tensegrity: balancing external and internal forces acting on the enterprise 271

Segmenting customers versus segmenting supply chains 273

Managing in a parallel universe 275

Digitalization is mandatory 277

From 'static' to 'dynamic' organization designs 280

New focus on the supply side 285

Resilience, delivered 287

A final word 288

Notes 288

References 288

15 Leadership in logistics 289

Richard J Atkinson

What is leadership, and why should we develop leadership skills? 289

Better practice, and the law 290

The problem (opportunity) 292

What leadership is not 294

What should we do? 295

Leading innovation 296

Strategy 300

Engagement 301

'How' not 'who' 301

Summary 304

References 305

16 Ethics in supply chains: an illustrated survey 306

Steve New

Introduction 306

Characterizing the field of supply chain ethics 307

Two key issues in supply chain ethics 315

The Boohoo case	320
Concluding comments	327
Notes	328
References	330

17 Humanitarian logistics and supply chain management 338

Yasmine Sabri

Introduction	338
The significance of humanitarian logistics and supply chain management	339
Humanitarian logistics and supply chains phases	341
A framework for managing humanitarian logistics and supply chains	344
Pandemic supply chain: Covid-19 supply chain systems	349
Concluding remarks	352
Notes	353
References	353

18 Digitalization in global supply chain operations 358

Andreas Taschner and Hazel Gruenewald

Digital technologies and their relevance for global supply chains	359
Current adoption of digital technologies	364
Conclusions	379
References	380

19 Digitalization and Industry 4.0 in logistics 382

Pietro Evangelista and Witold Bahr

Introduction	382
The uneasy road to digitalization in logistics: from Industry 4.0 to Logistics 4.0	383
Digitalization in the logistics service industry: challenges towards Logistics 4.0	385
Conclusions	388
References	389

- 20 Performance measurement and management in the supply chain 391**
Alan Braithwaite
Measure to manage 391
Measuring outcomes versus inputs 394
The balanced scorecard: the strategic standard for goal setting and measurement 395
The fundamentals of supply chain performance measurement 399
Mastering the complexity of supply chain and logistics performance management 401
Setting goals across the chain through service level agreements 402
The delivery, recovery and governance model 406
Defining the specific metrics across the chain 408
Control towers: collecting, managing and using data 412
Future directions in performance measurement 414
Conclusion 416
Notes 417
- 21 Aligning technology, manufacturing and supply chain: why it matters and how to do it 418**
Aristides Matopoulos, Brian Price and Yuchun Xu
Introduction 418
The evolution of concurrent engineering 419
How to align technology, manufacturing and supply chain 421
Conclusion and future research 424
References 425
- 22 The ‘deglobalization’ of logistics and supply chains: operating in an increasingly nationalistic and risky world 427**
David B Grant, David A Menachof and Christopher Bovis
Introduction 427
Background 428
Research approach 432
Proposed risk framework to address deglobalization 433
Conclusions 440
References 443
- Index 447*

ABOUT THE CONTRIBUTORS

Richard Atkinson CBE is a Teaching Fellow at Aston University where he teaches leadership, strategy and engagement on executive education programmes. Formerly a fighter pilot, Richard has served as a senior commander of Royal Air Force (RAF) combat forces, a director of NATO operations, and as a deputy director of strategic planning in Whitehall. He has also served as the Director of Media and Communications for the RAF, and for the Chartered Institute of Logistics and Transport (CILT). Richard has a passion for converting theory into practical action to help the next generation lead the creation of a sustainable future for the years ahead.

Witold Bahr is a lecturer in operations and supply chain management at Coventry University. Prior to a career in academia he worked in all parts of the supply chain. He has also held a full-time academic/research post at Aston University, where he completed his PhD on technology deployment in supply chains. He is a committee member for CILT's Warehouse Technology and Materials Handling Forum. His current work focuses on new and disruptive technologies for supply chains, sustainability, and the divergence between theory and practice.

Christopher Bovis is Professor of International and European Business at the University of Hull. He specializes in all areas of European business law, competition and state aid, intellectual property, transport, telecommunications and infrastructure. He is a leading international authority on public procurement, public-private partnerships and public-sector management. He advises national governments and international organizations on regulatory reforms and has acted on behalf of the public sector and industry on numerous high-profile projects. He is Editor in Chief of *European Procurement and Public-Private Partnerships Law Review*, published by Lexxion Verlagsgesellschaft. His academic work has been translated into several languages, including Chinese, Russian, French and German.

Alan Braithwaite has worked in supply chain and logistics since 1979, forming the specialist LCP Consulting in 1985 which became the leading independent European specialist in supply chain management. During nearly

40 years he has worked with around 400 companies as well in the public sector. Between 1987 and 2018 he was a visiting academic at the Centre for Supply Chain and Logistics Management at Cranfield University and a visiting professor from 2006. He contributed to research and teaching and was Acting Head of Supply Chain Research for 18 months. He has been widely published and is a frequent presenter at conferences. Alan holds an MSc in Business Administration from the London Business School and a BSc in Chemical Engineering from Birmingham University.

Martin Christopher has been at the forefront of the development of new thinking in logistics and supply chain management for almost 50 years. His contribution to the theory and practice of logistics and supply chain management is reflected in the many international awards that he has received. His published work is widely cited by other scholars and has influenced many practitioners. At Cranfield School of Management, one of the world's premier business schools, Martin Christopher helped build the Centre for Logistics, Supply Chain Management and Procurement into a leading centre of excellence. Under his leadership the Centre became one of the foremost focal points for innovative teaching and research in logistics and supply chain management. Now, after leading the Centre for over 20 years, Martin Christopher has become an Emeritus Professor.

Patrick Daly works with many of the top Fortune 500 companies in manufacturing, distribution and logistics services in Europe, Asia and the Americas, helping them to achieve dramatic improvements in their supply chain capabilities and performance through supply chain excellence. In his consultancy assignments, Patrick has worked with clients in China, India, Uruguay, Puerto Rico, Egypt, UAE, United States, UK, Spain, Croatia and others. He is the author of *International Supply Chain Relationships: Creating competitive advantage in a globalized economy* published by Kogan Page in 2019. Patrick is an active member of the National Logistics Forum in Ireland set up by the Department of Transport, Trade and Tourism in April 2020 to advise the Irish government on keeping supply lines open during and after the Covid-19 pandemic.

Christian F Durach (Dr-Ing, Technische Universität Berlin) is full Professor and occupies the Chair of Supply Chain and Operations Management at ESCP Business School, Berlin Campus. His main research activities are related to supply chain risk management, digitization, and the implications of

social sustainability on modern operations. He has published several peer-reviewed journal articles (Emerald Outstanding Paper Award, 2018 – *Supply Chain Management: An International Journal*), is Senior Editor of the *Journal of Business Logistics* (Outstanding Reviewer Award, 2019), Senior Associate Editor of the *International Journal of Physical Distribution & Logistics Management* (Emerald Best Reviewer Award, 2017) and Editorial Board Member of the *International Journal of Operations & Production Management* (Emerald Best Reviewer Award, 2020). Christian is the Academic Director of all specialized Master's programmes hosted by the ESCP Berlin Campus.

Pietro Evangelista is Research Director at the Research Institute on Innovation and Services for Development (IRISS) of the Italian National Research Council (CNR). Pietro is a business economist by background and he was awarded a PhD in logistics by Heriot-Watt University (UK) in 2009. He has carried out extensive research into economic and management issues associated with maritime and port logistics, as well as on ICT dissemination in the logistics service industry. His current scientific interest is in decarbonization of freight transport and logistics. Pietro is a member of the editorial board of leading international journals in the supply chain area. He teaches green logistics in Italian and international universities and is a member of the Research Committee of the European Logistics Association (ELA).

John Fernie is Emeritus Professor of Retail Marketing at Heriot-Watt University, Scotland. He has written and contributed to numerous textbooks and papers on retail management, especially in the field of retail logistics. He was the founder editor of the *International Journal of Retail & Distribution Management* and is on the editorial board of numerous marketing and logistics journals. He is a Fellow of the Chartered Institute of Logistics and Transport (CILT).

John Gattorna is a renowned global supply chain 'thought leader' and author. He started his professional life as an engineer, but soon moved into what was then called physical distribution management in the mid-1970s. Over the last four decades John has been a consultant, researcher and teacher in supply chain management. He started the Accenture Supply Chain Practice in Asia Pacific in 1995, and since retiring from that role in 2003 he has focused solely on supply chain 'thought leadership' in an endeavour to give this new field of management science some conceptual horsepower.

He is a prolific author and well respected speaker on the international circuit. He lives in Sydney, Australia. See www.gattornaalignment.com (archived at <https://perma.cc/R8XV-VQU4>) for further information.

David B Grant is Dean of Research & Societal Impact, Hanken School of Economics, Finland and Bualuang ASEAN Chair Professor, Thammasat University, Thailand. His research interests include customer service quality and satisfaction; retail; and sustainable and societal logistics. Recent research includes retail on-shelf availability and stock-outs; consumer e-commerce fulfilment preferences; and food retail loss and waste. He has over 250 publications and his Kogan Page books *Sustainable Logistics and Supply Chain Management* and *Fashion Logistics* are now in second editions. He was ranked fifth in Economics, Business and Management and first in Industrial Economics and Logistics in a 2019 academic study evaluating Finnish professorial research impact and productivity.

Hazel Gruenewald is Professor of Organizational Behaviour at ESB Business School, Reutlingen University. She received her PhD from the University of Nottingham, UK in 2000. She joined ESB Business School following a nine-year career in industry in various positions spanning global corporate training and development, management development and international programme management. She has acted as an international guest lecturer at universities including SBM ITB (Jakarta, Indonesia), UMP (Kuantan, Malaysia), and, ZSEM (Zagreb, Croatia). Her current research focuses on self-efficacy, motivation, transferrable skills and digitalization.

Maria Huge-Brodin is Professor of Green Logistics at the division of Logistics and Quality Management, and leads the research group Climate Smart Freight Transport, at Linköping University, Sweden. Maria's research interests and current research focus include green logistics and green supply chain management, and its interfaces with related research areas such as consumer behaviour, quality management, and vehicle design and configuration. Maria performs conceptual research, as well as collaborative research with numerous organizations. She is also head of a five-year Master's programme in Energy, Environment and Management at Linköping.

Louise Knight is Professor of Public Sector and Healthcare Procurement at the University of Twente (the Netherlands), and Co-Editor-in-Chief of the *Journal of Purchasing and Supply Management*. Her industry and research

experience spans infrastructure, healthcare and government procurement. Louise's research on strategic public procurement, market dynamics and sustainable transitions, the future of procurement (in partnership with the Chartered Institute of Procurement and Supply), and supply network learning is published in a wide range of journals. The unifying theme is the development of a strategic perspective on capacity and capability building in procurement, which are crucial if supply professionals are to play a significant and proactive role in envisioning 'business-not-as-usual' and shaping new directions.

Heimo Losbichler is Professor of Controlling, Head of Studies Controlling, Accounting and Financial Management and Dean of the School of Business and Management at the University of Applied Sciences, Upper Austria. He is Chairman of the International Association of Controllers (Germany) and Chairman of the International Group of Controlling (Switzerland). Dr Losbichler's research interests include controlling, management accounting and financial performance measurement. He has published more than 130 books, book chapters, conference proceedings and articles in a variety of leading German and international academic and professional journals.

Alan McKinnon is Professor of Logistics in Kühne Logistics University, Hamburg and Professor Emeritus at Heriot-Watt University, Edinburgh. A graduate of the universities of Aberdeen, British Columbia and London, he has been researching and teaching in freight transport/logistics for over 40 years and has published extensively in journals and books on many different aspects of the subject. Much of his recent research has focused on the links between logistics and climate change. He has been an adviser to several governments, parliamentary committees and international organizations, including the International Transport Forum/OECD, World Bank, European Commission, World Economic Forum and Intergovernmental Panel on Climate Change.

Farzad Mahmoodi is Joel Goldschein '57 Endowed Chair Professor in Supply Chain Management, and Director of Clarkson's nationally-ranked Global Supply Chain Management Programme. Dr Mahmoodi's research interests are in supply chain systems design and management, and systems modelling and simulation. He has published about 100 articles in a variety of journals, including *Decision Sciences*, *International Journal of Production Research*, *Journal of Operations Management*, and *European Journal of*

Operational Research, as well as edited books and conference proceedings. He serves on the editorial boards of the *International Journal of Industrial Engineering* and *International Journal of Integrated Supply Management*.

Aristides Matopoulos is a reader in Supply Chain Design & Logistics Systems at Aston University and a visiting professor at the University of Lille. His research on the implementation of the ‘Design for Supply Chain/Logistics’ concepts led to the development of the Supply Chain Readiness Level Tool which assesses the maturity and capabilities of supply chains. In 2019 he was appointed a Royal Society Short Industry Fellow. His industrial collaborators include Williams Advanced Engineering, Jaguar Land Rover, Saietta, MCTReman, M&S, and many SMEs. His research has been funded by the EC (FP7, Horizon 2020), ERDF and Innovate UK.

Jo Meehan is a senior lecturer in Strategic Procurement at the University of Liverpool Management School. Prior to joining academia, Jo had a long career with ICI working in numerous purchasing and commercial roles. Jo’s current research centres on modern slavery, responsible procurement, corporate power and social value. Her research has won numerous awards for its contribution to the procurement field, and she is a regular public speaker on responsible business. Her work is extensively published in leading academic journals and in the professional press. Jo is Associate Editor for the *Journal of Purchasing and Supply Management* and champions the journal’s ‘business-not-as-usual’ research.

David Menachof is Associate Professor of Supply Chain and Operations Management at Florida Atlantic University. Previously, he was the Peter Thompson Chair in Port Logistics, based at the Logistics Institute at Hull University Business School. Professor Menachof received his doctorate from the University of Tennessee, and was the recipient of the Council of Logistics Management’s Doctoral Dissertation Award in 1993. He is a Fulbright Scholar, having spent a year in Odessa, Ukraine, and was on the designated list of Fulbright Scholars for Global Logistics. His research interests include global supply chain issues, supply chain security, risk and visibility, sustainable supply chain and logistics, financial techniques applicable to logistics, port management, liner shipping and containerization.

Steve New is Associate Professor in Operations Management at Saïd Business School, University of Oxford, and a Fellow in Management Studies at Hertford College. Steve has published extensively in the fields of procurement,

supply chain management and quality improvement, with his work appearing in journals ranging from the *Harvard Business Review* to the *British Medical Journal*. Much of his work is interdisciplinary, and he collaborates extensively with colleagues from across disciplines. He regularly works as a consultant with a wide range of clients in the private, public and third sectors.

Brian Price is an academic based at Aston University in the UK, teaching engineering and product design. Active research areas include ultra-low carbon vehicles, engine/transmission design and technology planning. With over 25 years' experience in industry, working worldwide on engine design consultancy, he brings a pragmatic approach to new product development. Previously chief engineer or technical director at a number of major engineering companies, including Lotus Engineering, Cosworth Technology, Mercury Marine, Harley-Davidson and Ricardo Consulting Engineers, he is also a visiting professor at Loughborough University, UK, University of Wisconsin-Madison, USA and Hanyang University, South Korea.

Yasmine Sabri is a lecturer (assistant professor) in supply chain management at Aston University in the UK. She received her PhD in Management, Economics and Industrial Engineering with distinction from Politecnico di Milano. Her research is centred on designing integrated supply chains that deliver value without compromising the social and humanitarian impact. Yasmine has published articles in *Production Planning and Control*, *International Journal of Logistics Management*, *Journal of Humanitarian Logistics and Supply Chain Management*, and *Journal of Engineering and Technology Management*.

Carolyn Somorowsky has been a research associate at the University of Bremen since 2017. Carolyn holds a Master's degree in information-oriented business administration with specialty in operations research and finance from the University of Augsburg. She studied business administration with a focus on logistics, finance and sustainability. Her research focus is on supply chain management and supply chain finance as well as co-operative game theory. She is currently working on her doctoral thesis entitled 'A Collaborative Approach to Financing Investments in Supply Chains'.

Lars Stemmler is Head of International Projects with bremenports GmbH & Co KG, the infrastructure managers of the ports of Bremen and Bremerhaven. Prior to that, he was deputy head of a credit risk analysis team of a global

bank in Germany. Lars has more than 20 years of experience in logistics and finance. He has carried out international projects in port development and transport finance and is visiting professor at various European universities in the field of maritime logistics. Lars holds a PhD in European port policy and a Master of Science in logistics from Cranfield University.

Frank Straube is full Professor for Logistics at TU Berlin since 2004 and MD of the Institute for Technology and Management. He was previously Dean of the School of Business and Management of TU Berlin. Frank studied industrial engineering and received his doctorate in logistics in 1987. He headed an international consulting and planning company for logistics for more than 10 years with projects in Europe, the Americas and Africa. He got his ‘habilitation’ at the University of St Gallen, Switzerland. Frank is a member of editorial boards of international logistics journals. He founded the International Transfer Center for Logistics (ITCL) and is permanent Visiting Professor at Panthéon-Assas University (Paris) and Tongji University (Shanghai).

Edward Sweeney is Professor of Logistics and Systems and Head of the Department of Engineering Systems & Supply Chain Management at Aston University in Birmingham, UK. He has held full-time academic posts at Technological University Dublin, the University of Warwick and the University of Technology, Malaysia (UTM), as well as visiting positions at several institutions in Asia and North America. Edward’s research has been widely published and he sits on the editorial boards of several leading international supply chain journals. He has worked in close collaboration with many of the world’s leading companies across many sectors including electronics, food and drink, life sciences and logistics.

Andreas Taschner is Professor of Accounting and programme director of the BSc in International Operations and Logistics Management at ESB Business School, Reutlingen University. He joined ESB Business School from Beuth University of Applied Sciences, Berlin, after 12 years in manufacturing industry, holding various management positions in the marketing and accounting area. Andreas studied Business Administration at Wirtschaftsuniversität Wien and at the University of Illinois at Urbana-Champaign and holds a PhD in social sciences from Wirtschaftsuniversität Wien. Andreas has held various academic management positions and was Dean of ESB Business School from 2016 to 2019. He is also a member of the

German logistics association ‘Bundesvereinigung Logistik (BVL)’. Andreas focuses his research and publication activities on management accounting problems in an international manufacturing environment with a special focus on logistics and supply chains and has published various textbooks and journal papers on management accounting topics. He is a reviewer for several peer-reviewed journals.

Frederik GS Vos works as Assistant Professor in Supply Management at the University of Twente and as Senior Consultant at the Public Procurement Research Center (PPRC) in the Netherlands. He is also the Treasurer of the International Purchasing and Supply Education and Research Association (IPSERA), Vice President of the member council of the Dutch association of purchasing professionals (NEVI) and owner of suPlay BV, a serious game company. His areas of expertise include public procurement, public–private partnerships, buyer–supplier relationships, healthcare procurement, data analytics and serious gaming.

Yuchun Xu is Professor of Manufacturing at Aston University. His research expertise lies in the areas of Digital & Smart Manufacturing, and Life Cycle Engineering. Prof Xu’s research has close links with industry and has been funded by UK EPSRC, EU H2020, FP7 and Innovate UK. He has had his research published in over 60 peer-reviewed journal and conference papers. Professor Xu is the Member of EPSRC Peer Review College. He regularly serves as a technical and programme committee member and as a session chair at leading international conferences.

PREFACE

The first edition of *Global Logistics and Distribution Planning: Strategies for Management* appeared in 1988. My own supply chain journey has in many ways mirrored developments in the logistics field during the intervening decades. Now in its eighth edition, *Global Logistics: New directions in supply chain management* also reflects the many changes which have taken place in the logistics world during that time. I am writing this preface in late 2020, towards the end of a year during which we have faced unprecedented challenges as a society and as a profession. Our response to the Covid-19 pandemic as a society has highlighted the critical role of supply chains not just to economic but also to wider societal wellbeing. In the early part of the year, many supply chains were reimaged as the lockdown and other restrictions forced radical changes in consumer behaviour, including but not limited to the shift to online shopping. Logistics processes in the healthcare sector proved vital in ensuring reliable supply of personal protective equipment (PPE) and other critical commodities. In addition, the UK's departure from the European Union put our profession at the vanguard in dealing with the many supply chain challenges that Brexit threw up. At the time of writing, the full extent of the economic and other damage caused by Brexit remains to be seen. What is quite clear though is the key role that logisticians and other supply chain professionals will play in dealing with the inevitable fallout.

The underpinning tenets of *Global Logistics: New directions in supply chain management* reflect some key overall drivers. First, the supply chains of 2020 are much more international in complexion than those in which I first worked in the late 1980s and early 1990s. This is a direct result of significant structural changes that have taken place in the international economic and business environment in recent decades. Some recent evidence of 'deglobalization' notwithstanding, the general trend over time has been one of reductions in the many barriers to international trade that have historically existed. It is now possible to move products, services, money, information, knowledge and other resources across international frontiers with relative ease. It is in this context that truly international – sometimes genuinely global – supply chain architectures have been developed. This requires innovation in supply chain processes – ie the identification of new and better

ways of carrying out upstream and downstream logistics and other activities. It is the planning and implementation of this innovation that holds the key to improving supply chain capability and performance, thereby enhancing the competitive advantage of firms and the wider supply chains of which they are part. It is these new directions that provide the framework for this book.

Martin Christopher sets the scene for this in Chapter 1 by making the case for the re-thinking – sometimes the quite radical re-thinking – of supply chain strategy. This re-thinking needs to have a clear focus on flexibility and meeting changing customer requirements in the marketplace. There can be little doubt that contemporary supply chain management (SCM) thinking has assumed a more strategic role than in the past when the focus was often largely on short-term cost reductions and service improvements. In this context, it is important to establish a clear link between SCM and financial performance. This is the focus of Heimo Losbichler and Farzad Mahmoodi in Chapter 2, based on the use of economic value added (EVA) as the primary financial metric. The challenges of 2020 sharpened our focus on the risk associated with disruptions of various kinds to business. The concept of supply chain risk management (SCRM) proposed by Carolyn Somorowsky and Lars Stemmler in Chapter 3 aims at minimizing the impact of supply chain disruptions through addressing finance risks. The management of supply chain vulnerability is a capability that is finding its moment in the development of supply chain thinking. ‘The downside from supply chain risks is much greater than the upside from perfect supply chains’, according to Alan Braithwaite in Chapter 4. In this context, developing a thorough understanding of how supply chain vulnerability can be managed effectively is becoming critically important as organizations strive to build more resilient supply chains.

The next part of the book begins with a discussion of fulfilment of customer needs using both marketing and logistics by David Grant in Chapter 5. My experience suggests that these are two critical but complementary business processes and that their effective engagement is pivotal to the creation and delivery of customer value. Also of critical importance in a supply chain context is procurement – as noted by Louise Knight, Frederik Vos and Joanne Meehan in Chapter 6: ‘Procurement is often regarded as one “half” of supply chain management (SCM), with SCM defined as logistics and procurement.’ Without doubt, the procurement aspect of SCM has a vital role to play in facilitating competitive differentiation and strategic advantage. The physical movement of product remains a core element of logistics and

SCM. In Chapter 7 Alan McKinnon discusses the critical issue of asset utilization optimization in freight transport systems. The retailing part of the business ecosystem has been changing over a long period of time with recent months having seen particularly rapid changes in response to pandemic pressures. John Fernie explores some of the logistical and supply chain challenges associated with these changes in Chapter 8.

As noted above, this book focuses specifically on those issues that are of most significance in an international or global context. In Chapter 9, Christian Durach and Frank Straube draw on evidence from a number of empirical research projects to highlight some key trends and strategies in global logistics and SCM. A key lesson from this work is successful companies will strategically integrate their logistics activities into the overall business system. In this context, global sourcing and supply is a central part of the business strategies of most large businesses. In Chapter 10, Alan Braithwaite explores some of the key issues in 21st-century global sourcing. For many firms the reality of global sourcing has required a reassessment and reappraisal of the way in which international relationships are management. This is the subject of Patrick Daly's discussion in Chapter 11.

Twenty-first-century supply chains need to be sustainable, not only from an economic perspective but also from environmental and social points of view. Chapter 12 by Maria Huge-Brodin and myself provides an overview of the concept of sustainability for businesses and the wider supply chains of which they are part. The anthropogenic impact of logistics activities is now widely understood and the development of more environmentally sustainable logistics practices is a key concern among policy-makers and supply chain professionals. This is the focus of Chapter 13 by Alan McKinnon. It also needs to be recognized that supply chains are fundamentally human or people constructs. In Chapter 14 John Gattorna recognizes that people are the power behind contemporary supply chains. His chapter focuses specifically on the adoption of 'outside-in' mindsets when designing resilient supply chains for the volatile operating environments of the future. Gattorna's signature strategic alignment concept recognizes the critical role of leadership in supply chains. Richard Atkinson uses his many decades of leadership in a variety of logistics settings to provide practical guidance for supply chain professionals in Chapter 15. In the context of social sustainability, there is a wide range of ethical issues that present challenges for logisticians and other supply chain professionals. This is the subject of Chapter 16 by Steve New. Whilst the focus of much of this book is on logistics and SCM issues in commercial businesses, we know that effectiveness in

this area is critical in a humanitarian context. Yasmine Sabri provides an overview of this subject in Chapter 17.

The connectivity and integration of global supply chains is fundamentally dependent on our ability to manage information flows efficiently and effectively. In this context, the effective adoption of existing and emerging digital technologies is a critical success factor. In Chapter 18, Andreas Taschner and Hazel Gruenewald explain the digitalization process and its role in global supply chain operations. In a logistics context specifically, the Industry 4.0 concept has and will continue to have a major impact. This is the subject of Chapter 19 by Pietro Evangelista.

The final part of the book focuses on some of the key issues that need to be considered in ensuring that supply chain strategies and plans are well executed in practice. Chapter 20 by Alan Braithwaite recognizes that ‘what gets measured gets done’ and provides a range of valuable insights into performance measurement and management in the supply chain. The proactive design of supply chains depends critically on the effective alignment of technology, manufacturing and the supply chain itself. In Chapter 21, Aris Matopoulos, Brian Price and Yuchun Xu provide some practical guidance on this issue in the context of three-dimensional concurrent engineering (3DCE).

The changing economic and political landscape in the 21st century has fostered discussions about the sustainability of globalization. Hence, any book on global logistics would be remiss if it did not bring this discussion into the supply chain domain. It is in this context that Chapter 22 discusses issues related to ‘deglobalization’, an antithesis to globalization.

The 30 contributors to this book are all acknowledged experts in their fields and each brings a wealth of experience and knowledge to their treatment of the various topics. Some are eminent academics who have undertaken leading-edge supply chain research over recent decades (eg Christopher, McKinnon and New). Others have experience as consultants to leading firms (eg Braithwaite and Daly) while some, myself included, have worked primarily at the academic/business interface and/or in a mix of academic and practitioner roles. This blend of backgrounds brings a rich mix of content to this book. Some chapters present a profile of state-of-the-art research-informed knowledge in areas under consideration, while others provide more practical guidance to those charged with the implementation of this knowledge in a range of practical settings. It is also worth noting that the contributors are based in over a dozen countries across three continents – this is important in the context of a book that purports to be global in its

orientation. Each gives an authoritative view of current thinking. Of course, this does not mean that they present the only view, and we hope that the material will encourage informed discussion.

This edition has been rewritten with new examples to support its theses. The focus is contemporary, data has been refreshed and some of the previous chapters have been replaced. The book continues to evolve, maintaining its focus on current issues that are relevant to an international readership.

The book can be read profitably by anyone with an interest in logistics and the supply chain. This includes: researchers and academics; undergraduate and postgraduate students; supply chain professionals across different industry sectors and in different geographical settings; public policy-makers grappling with myriad logistics-linked challenges; and consultants and others whose work would benefit from an appreciation of current thinking about the supply chain.

As noted by previous editors of *Global Logistics*: ‘One of the greatest pleasures of being editor is to be the first to enjoy the riches of the chapters as they are written. I now leave it to new readers to explore the chapters that follow, in the anticipation that they too will benefit, both professionally and personally, from the wealth of knowledge and expertise that they contain.’

Do enjoy reading this book.

Edward Sweeney

ACKNOWLEDGEMENTS

In line with good practice in supply chain management the timely publication of this book has required effective teamwork and collaboration. In this context, there are several people to whom I would like to convey my sincere thanks.

First and foremost, I recognize that an edited volume of this kind is only as good as the team of contributing authors. This book brings together the knowledge and insights of 30 individuals who collectively bring hundreds of years of experience to the endeavour. They represent a mix of academics, consultants and practitioners, thereby ensuring that the book is an effective blend of theory and practice. This is important as we have worked to ensure that this volume can be read equally profitably by those working as supply chain professionals in business and industry, as well as by academics, researchers and students.

This book was written during the Covid-19 period and this in itself brought many unexpected challenges. I am hugely grateful to my friends and family in Ireland, the UK and elsewhere for their support as we have all battled through this difficult period together. The experience has certainly taught us that we can only survive and prosper when we work collaboratively based on a recognition of shared goals and values.

Finally, this book would never have seen the light of day without the unwavering support of Joyce Byrne. As well as providing moral support when I was struggling with various facets of this project during the lockdown period, she brought her many talents – attention to detail and inimitable communication skills in particular – to the onerous task of proof-reading and related tasks. I send my love to Joyce as always, as well as my thanks for her practical support.

Edward Sweeney