

## **PRAISE FOR A CIRCULAR ECONOMY HANDBOOK**

‘A confident, comprehensive text allowing access to all the major strands contributing to business opportunities in a circular economy. It is brimming with facts, case studies and references for further study. A very timely publication indeed!’

**Ken Webster, Head of Innovation, Ellen MacArthur Foundation**

‘Sector by sector, Catherine systemically unpicks why we need to build a circular economy and, crucially, complements this analysis to explain how we can do this.’

**Mike Barry, Director of Sustainable Business, Marks and Spencer plc**

‘This book has got it all and is a must-read for anyone who wants to understand and apply the circular economy today. The enablers, accelerators and drivers are illustrated with practical examples and applications. For an assessment of the challenges that lie ahead, read this book and learn from one of the best.’

**Dr Julieanna Powell-Turner, Sustainability Director, Frith Resource Management, and Senior Lecturer in Sustainable Supply Chains, Cranfield University, UK**

‘Making maximum use of resources and extracting value multiple times over is at the heart of the transition to a circular economy. This handbook is perfectly timed to help businesses adapt and thrive by implementing circular economy principles and practices.’

**Martin Baxter, Chief Policy Advisor, IEMA**

‘A fascinating and insightful look at the circular economy, from laying out the history, principles and underlying concepts through to practical guidance for considering and implementing a more circular approach for any business. Transitioning to circular business models should be at the top of every organization’s agenda and this book will help to stimulate and guide that change.’

**Nick Cliffe, Innovate UK**

‘An extremely useful handbook on the Circular Economy, a great reference base interweaved with a richness of case studies. It’s easily digestible and bridges from theory to implementation seamlessly. I would recommend it as a ‘go-to’ reference for anybody looking to learn about, or adopt, circular economy models.’

**Steve Smith, Director, Supply Chain Transformation, Tata Steel Europe**

‘Introduces the central concepts and ideas for sustainable ways of working in a clear, pragmatic manner. The many practical examples make tangible the supply chain models increasingly required to conserve scarce resources whilst supporting economic growth. Here is a handbook for change that could not be more timely.’

**Calum Lewis, Senior Director – Demand Planning/Management EMEA, The LEGO Group**

‘A clearly written and accessible introduction to the development and implementation of circular thinking, with tangible and meaningful examples to help organizations and their partners making the journey towards circularity.’

**Dr Matthew Hunt, Director, Environment and Sustainability Consulting, Royal HaskoningDHV**

‘Catherine Weetman’s ambition seems to me to be to set the agenda for businesses and their supply chains in our globalized economy, and her book, *A Circular Economy Handbook for Business and Supply Chains*, does just that. With elegance and flair, this book promises to open people’s eyes, rewire their thinking and reset aspirations for what can be achieved by the intelligent application of these ideas. Weetman is a provocative thinker and has put together a book which will help businesses and those who lead them to stay ahead of the process of organizational adaptation and introduce real and much needed change.’

**Gerard Chick, Director of Intelligence, Skanör Group Ltd**

‘The need for sustainable supply chain management and in particular the management of the closed loop economy (circular economy) is both topical and important. Supply chain practitioners have the challenge to not only learn and understand these new concepts but also utilize a number of tools and techniques to effectively manage their chains. This book provides a comprehensive treatment of topics influencing the circular economy across a variety of sectors and provides valuable guidance for managing

supply chains. An abundance of case examples, tools and learning resources within this book will be extremely beneficial to students, academics and practitioners.'

**Professor Samir Dani, Professor of Logistics and Supply Chain Management, University of Huddersfield, UK**

'This book fills a need by bringing together a wide range of insights and examples about the growing importance of the circular economy and its impact on traditional business models and the supply chain networks with which we are currently familiar. The many practical cases are supported by the very clear structure and the way that the wider context is integrated into the discussion and analysis. The author has a wealth of experience and this is evident throughout the text. This book is a major and timely contribution to improving our understanding of the circular economy and its implications for supply chain and logistics management.'

**Michael Browne, Professor of Logistics, School of Business, Economics and Law, University of Gothenburg, Sweden**

'Circular economy is a fast-rising theme among academics and practitioners. This book consists of wide-ranging references and in-depth knowledge, which crystallizes the idea of the circular economy for implementation and research needs.'

**Professor Ming K Lim, Professor of Supply Chain and Operations Management, Coventry University, UK**

'If you are looking for a comprehensive and practical guide to the supply chain aspects of the circular economy, this book should comfortably meet your needs. It is cleverly structured, highly informative and written in a very engaging style by one of the foremost specialists in the subject.'

**Professor Alan McKinnon, Professor of Logistics, Kühne Logistics University, Germany**



# A Circular Economy Handbook

*How to build a more resilient, competitive and sustainable business*

SECOND EDITION

Catherine Weetman



**Publisher's note**

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Online resources to accompany this book can be downloaded from:

**[www.koganpage.com/CircEcon2](http://www.koganpage.com/CircEcon2)**

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General Electric	3D printing	Aerospace	9
Excess Materials Exchange	a 'dating site' for secondary materials	All	9
Renault	recycling and remanufacturing	Automotive	1
Renault	remanufacturing, reuse and 'cascading'	Automotive	9
bioMASON	microorganisms to grow construction materials	Construction	9
research	bricks from human urine	Construction	9
Calfee Design	renewable inputs	Consumer durables	2
iFixit	knowledge-sharing platform	Consumer durables	8
IKEA	'a positive impact on people and the planet'	Consumer durables	1
IKEA	simplifying reuse	Consumer durables	2
ReTuna	the world's first recycling mall	Consumer durables	3
ShareGrid platform	P2P renting	Consumer durables	3
Apple	safe, recycled, renewable materials	Consumer technology	8
Apple	trade-in	Consumer technology	8
Apple	material recovery robots	Consumer technology	8
Best Buy	keeping electronics in play	Consumer technology	8



Company	Description	Sector	Chapter
Circular Computing	the 'world's first computer remanufacturer'	Consumer technology	8
Dell	recycled and renewable inputs, closed loop process	Consumer technology	8
Electronics companies	reverse supply chains	Consumer technology	13
Environcom	circular service provider	Consumer technology	8
Fairphone	Fairtrade-certified supply chain for gold	Consumer technology	8
Fairphone 2	modular, durable and repairable	Consumer technology	8
GIAB	closing the loop on insurance claims	Consumer technology	8
Homie	pay per use household appliances	Consumer technology	8
iameco	'sustainable, ecological, high performance computers'	Consumer technology	8
Refind Technologies	artificial intelligence for reverse vending	Consumer technology	4
Repair Café	knowledge-sharing pop-ups	Consumer technology	8
Tech Takeback	pop-up events getting end-of-use consumer technology back into the loop	Consumer technology	8
Telefonica UK – O2 Recycle	rewarding recovery flows	Consumer technology	8
Adidas	recycled inputs, 3D printing	Fashion and textiles	2
Ananas Anam	Piñatex™ fabric: renewable inputs	Fashion and textiles	7
ApparelXchange	making it easy to reuse school uniforms	Fashion and textiles	7
Burberry and Elvis and Kresse	luxury products from offcuts	Fashion and textiles	2

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Greencup	open loop, cross-sector recycling	Food	6
GRO Holland	growing mushrooms on coffee grounds	Food	6
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Pectcof	coffee cherry – waste = food	Food	2
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Company	Description	Sector	Chapter
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Tomorrow Machine	biodegradable packaging	Food packaging	2
	carbon fibre from algae	Industrial	4
Cisco Systems Inc	take-back and recycle programme	Industrial	2
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Philips	service and performance	Industrial	1
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Schneider	Circulars 2019 Multinational award-winner	Industrial	9
Herman Miller	design for recyclability	Office furniture	9
Warp IT	reuse platform	Office furniture	9
3D Seed	low-cost, solar-powered kit to recycle PET packaging into 3D printed objects	Packaging	4
Algramo	sharing the savings of bulk distribution	Packaging	10
ARK Reusables	reusable and recyclable food-to-go containers	Packaging	10
Frugalpac	recyclable multi-layer beverage carton	Packaging	10
Garcon Wines	flat wine bottles saving resources, volume, weight and energy	Packaging	10
How2Recycle	taking the guesswork out of recycling	Packaging	10
Loop (by TerraCycle)	making reuse easy and attractive	Packaging	10
Splosh	concentrated refills for household cleaning products	Packaging	10
TerraCycle	recycling hard-to-recycle waste	Packaging	10

Company	Description	Sector	Chapter
Ecovative Design	growing packaging	Packaging; industrial	2
ship dismantling	reverse supply chain and recovery of materials	Transport	12

## ABOUT THE AUTHOR

### Catherine Weetman



Catherine is an international speaker, workshop facilitator, coach and host of the Circular Economy Podcast. Her consultancy, Rethink Global, helps organizations understand, use and benefit from the circular economy – exploring the ‘sweet spot’ where strategy, supply chain and sustainability come together.

Catherine has over 25 years’ experience in manufacturing, retail and supply chains, and her career spans food, fashion and logistics, including senior roles with Tesco, Kellogg’s and DHL Supply Chain.

She is a Visiting Fellow at the University of Huddersfield, a Fellow of the Chartered Institute of Logistics and Transport, and a Fellow of The RSA (Royal Society for the Encouragement of Arts, Manufactures and Commerce). She supports the global non-profit Circular Economy Club as a Mentor and Regional Coordinator for the Tees Valley, UK.

Catherine qualified as an Industrial Engineer and began her career in garment manufacturing, before moving onto logistics solution design, project management, business intelligence and supply chain consulting. Catherine gained an MSc in Logistics and Distribution from Cranfield University and her awards include the Director’s Prize for Outstanding Achievement at Cranfield Centre for Logistics and Transportation, and the British Clothing Industries Association Business Fellowship Award.

Catherine says:

I first came across the circular economy back in 2010, when I was struggling to work out how businesses could adopt sustainable strategies. After spending months researching the issues (and getting really depressed about the scale of the problem and lack of solutions), I read about the circular economy in a short book for schools: *Sense and Sustainability* by Ken Webster and Craig Johnson

of the Ellen MacArthur Foundation (2009). Suddenly the world looked much brighter, and I wanted to learn more about the circular economy and how it could solve the enormous challenges we face in creating a resilient, healthy, sustainable future. By 2013, I had decided to focus entirely on helping to ‘spread the word’ on why it is so important for our future, how it is taking shape and how it helps. I believe the circular economy is the best tool we have to underpin profitable, resilient and sustainable business models, and support healthy, equitable societies. My aim is to inspire you to use circular approaches in your own lives and work.

## ABOUT THE CONTRIBUTORS

### Katie Beverley



Katie is a Senior Research Officer in Ecodesign at PDR, the International Centre for Design Research in Cardiff, Wales. Katie undertakes research, knowledge transfer activities and commercial projects which require the application of design to minimize environmental impact, increase resource efficiency and exploit circular economy opportunities. Katie holds a PhD in chemistry, which proves useful in facilitating discussions between designers, scientists and technologists, and for understanding opportunities for new materials in the circular economy. She has worked with policymakers, educators and businesses (including furniture, automotive, energy storage, electronics, sports equipment, fashion and textiles) both in Wales and internationally.

### Jo Conlon



Dr Jo Conlon is a Lecturer in Fashion Business at the University of Manchester. Jo has over 10 years' experience teaching Fashion Business in Higher Education. Prior to this, she worked within the supply chain of Marks & Spencer as a Technical and Sourcing Manager. In 2019, Jo completed a Doctorate in Education (EdD) investigating how digital technologies can reshape fashion business education. Her research centres on the enabling role of digital technologies on knowledge management, learning and change within organizations.

Jo has also received funding for two Knowledge Transfer Partnerships (KTP) projects to implement emerging and enabling technologies. Jo is a Fellow of the Higher Education Academy, a member of the Chartered Management Institute and an Associate of the Textile Institute.

### Dr Regina Frei



Dr Regina Frei joined Southampton Business School as Associate Professor of Operations and Supply Chain Management in 2019. She is passionate about sustainable value chains and the circular economy. She has over 40 peer-reviewed publications and 13 research grants. From 2013 to 2019, she was a Senior Lecturer in Manufacturing Engineering and Supply Chain Management at the University of Portsmouth, UK. Previously, she was a Postdoc at Cranfield University and Imperial College London. She holds a PhD in Distributed Robotics from Universidade Nova, Lisbon, Portugal, and an MSc in Micro-Engineering from the Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland. She wrote her MSc thesis at the Royal Institute of Technology (KTH) in Stockholm, Sweden, and did internships with the International Watch Company (IWC) and Schindler Lifts, both in Switzerland.

### Richard James MacCowan



Richard is the Founder and Managing Director of the Biomimicry Innovation Lab, and CEO of Smart Stable Limited, an equine technology startup. Alongside this, he is a Visiting Lecturer in Biomimicry and Strategic Product Design at the International Hellenic University. Richard sits on the advisory board of LSW Hotels and Post Harvest Ventures in Uganda.

With a background in human behaviour, real estate development and urban design, Richard has worked across



many sectors around the world and given keynote presentations to leading organizations. He is involved with the Global Manufacturing and Industrialization Summit, focusing on new strategies for manufacturing in the Fourth Industrial Revolution.

Richard supports the Circular Economy Club, where he leads the team in York (UK) and mentors startups.

### Barry Waddilove



Barry has 30 years' experience working in design and product development with brands and organizations across 25 countries. During 2014 and 2015 he completed extensive research into the role of design in the circular economy, whilst working as a Schmidt MacArthur Fellow with Cranfield University and the Ellen MacArthur Foundation.

Barry holds an MDes in Design and Innovation for Sustainability from Cranfield University and is a fellow of the Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA).

Currently working as Head of Design for Electrolux, North America, Barry is exploring new innovations that meet the company's corporate objective to be circular and climate neutral by 2030.

## ACKNOWLEDGEMENTS

Since I wrote the first edition of this book in 2015–16, the circular economy has progressed in leaps and bounds. For this second edition, my challenge was what to leave out, rather than how to find credible examples and evidence-based research. Again, I am grateful to the many people who have inspired me, helped and offered support. I would like to give special thanks to my contributors, including Katie Beverley, Dr Jo Conlon, Dr Regina Frei, Richard James MacCowan and Barry Waddilove; and to those who provided advice, introductions and feedback, including Jo Conlon, Lily Dunn, my colleague Peter Desmond, Alison Jones, Karen Skidmore and the Kogan Page team. Also to Calum Lewis, who provided feedback and suggestions for some of the first edition.

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Over the last five years, I've collected over 600 examples of inspiring businesses, social enterprises, startups, researchers and many others, helping to make history with circular economy innovations. I've also used the Circle-Lab Knowledge Hub, which has over 2,000 case studies from all around the world, and I'm now collaborating with Circle Economy to feed more of my examples into this fantastic free resource.

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Lastly, thank you for learning about the circular economy and helping develop smarter ways for business to support society and our living planet. I hope you find inspiration and stories in these pages to help you create better businesses – and a better world.

