

*A book full
of verbs*

BECOMING A SUSTAINABLE ENTERPRISE

***HOW THINKING LEAN
IMPROVES
COMPETITIVENESS,
RESILIENCE AND THE WORLD***

ROSE HEATHCOTE



Prof John Bicheno

Today climate change sceptics are (thankfully) an endangered species. This realisation has happened very rapidly. As yet, however, the ever more pressing case of general environmental sustainability seems to be of far lesser concern for many.

But how to respond? This is one of the most complicated and pressing questions that a decision maker in the Lean and Agile community faces. The first step, as in all problems, is a good understanding of the problem. Hence Rose's, well timed, contribution. You have in your hand a comprehensive overview, and a set of provocative thoughts that will be an indispensable starting point. And, in Lean and Agile, everyone should be involved. The issue simply cannot be delegated. This fits in well with Lean and it's 'gemba' orientation, outlined by Rose. Lean managers have long been concerned with value and with appropriate strategic considerations for customers, employees, suppliers, community, and investors. These considerations now need to include environmental considerations, and this book will be a useful first source.

To address sustainability, numerous issues – economic, political, and social - need to be tackled on different levels: international, national, regional, company, local, personal. Of course, Lean thinkers are by no means the only players involved. All branches of engineering, all branches of science, and other disciplines such as psychology all have roles to play. This means that, in the world of operations, a comprehensive systems approach is required – involving the full circular value stream (not just recycling) from client or customer and eventually back to the client or customer, requiring R&D, design, marketing, finance, HR as well as operations to be necessary participants. It is here that Lean thinking can play an invaluable coordinating role. In this book, the 'Sustainable Business Enterprise Model', 'Spot the Issues' and 'Eight Ways to Improve the World' are frameworks that readers will find useful for inter-disciplinary managerial guidance.

The emphasis on systems thinking throughout the book is most appropriate. Natural systems or ecosystems have often shown great resilience and an ability to recover from disastrous situations. Examples include the recovery of cod fish stocks in Norway and the recovery of the ecosystem in Gorongosa wildlife park following the ending of the war in Mozambique. But appropriate human intervention, based on eco-system understanding, is usually required to trigger the recovery. This is where managers, including Lean thinkers, schooled in sustainability appreciation, can make a difference.

Likewise, Lean thinkers can have a direct impact on sustainability where new technical concepts are involved. An example is electric vehicles. With reducing battery costs, EVs could soon be widely used in a two-way context as a means to reduce energy peaks. Flywheels are an emerging possibility. Working from home has entered organisation life. With all these and with AI providing the base, a logistics revolution is just beginning. Lean thinkers should be in the vanguard.

Too often, action only follows from catastrophic 'eco' events. Water shortages and floods are prime examples. Yet in Durban, South Africa, Toyota's response to a flood in 2022 was a classic on best practice. Here priorities were quickly established. First, employees whose homes had been flooded were helped. Second, the surrounding community including suppliers were assisted. Third, came the plant and in-process inventory. Throughout, not a single job was lost. Recovery involved careful machine restoration – including cleaning with toothbrushes. Although new machines were on order, delivery leadtimes meant that many flood-damaged machines had to be restored in order to restart production. What amounted to a comprehensive TPM programme resulted in many learnings and employee engagement. A three-stage defence plan against a possible future flood was put in place – at site level, at factory level, and at machine location level – including locating some machines off the floor.

A strength of this book is its pragmatic approach. Instead of slogans like 'just stop oil', and protests such as Extinction Rebellion, the urgent quest is for solutions. This book will be a great starting point.

Well done, Rose!

John is Emeritus Professor of Lean Enterprise at the University of Buckingham and founding director of the world's first MSc Lean Operations in Cardiff at the Lean Enterprise Research Centre. John has published numerous works, including The Lean Toolbox and Six Sigma and the Quality Toolbox, and continues in his quest to learn lean.



Prof Peter Hines

A fine book that takes it further than we did 10 years ago. It is excellent. I like how accessible the book is and the embedded videos. It will be a really good resource.

Peter is a distinguished professor and Co-Founder Lean Enterprise Research Centre, Fellow Shingo Institute and MD Enterprise Excellence Network. He is a multiple Shingo Research Award Recipient co-authoring Staying Lean and Creating a Lean & Green Business System.



Mr Ed Koch

Overall, it is an impressive work that articulates the value of lean thinking in addressing the sustainability challenges of our time. The book introduces the reader to all the key challenges in a highly engaging way, as well as providing access to global thinking and models that can be used to address these. Throughout, lean is comprehensively linked to show how we all can make an impact to improve our world. The book balances the stretching challenge that we all must rise to with a sense of hope. Congratulations!

Ed is Chief Solutions Officer at Competitive Capabilities International and a senior executive with global expertise in improving supply chain performance by applying Lean best practices. With a career spanning almost 30-years in operations in the consumer goods and beverage industries, he has both run operations and led manufacturing transformations in Africa, Europe, Latin America, USA, Australia and China.

review



BAHRAIN



Prof Dennis Gawlik

Rose offers a bright and bold perspective in *Sustainable Enterprise* for the possibility of global renewal to move us away from cultural and ecological degradation toward sound, future-focused thinking, coordinated approaches and, most importantly, action. This easy-to-follow book is visually beautiful with videos and interactive material that is inviting and refreshing, while providing a provocative look into the complicated world of nature, sustainability and lean/continual improvement.

The primary theme of *Sustainable Enterprise* advocates for the integration of reason and emotion in the tour that she provides through a careful layout of 8 chapters to inspire us to make changes for the better. This is a guidebook to help us find our way past the harmful effects of overconsumption, the over-reliance of growth and rapid industrialization, and dependency on short-term decision making. *Sustainable Enterprise* is one of the first sustainability E-books that taps into all facets of adult learning. A bonus - the layout of the chapters can be taken as stand-alone course material too.

All chapters, from Chapter 2 – Lean a Sustainable Growth Vehicle, to Chapter 5 – Across the Value Chain, bring us closer to the combination of systems thinking and scientific thinking in way that encourages a wholistic approach to lean and sustainability. *Sustainable Enterprise* encourages the reader to identify their own path forward in reconciling complicated ecological and tech-related ideas – with the goal to move the reader from current ‘less unsustainable’ practices, towards a more truly sustainable future. While there still are mechanistic, linear approaches contained in some of the material, the prevailing thinking throughout this book is helping to bring to light a more circular, nature/earth-centric mindset in an appealing visual manner.

Rose could have included more background material about how our conventional growth-oriented industrial economy, policies and over-consumption attitudes brought us to this point to fully clarify the primary problem statement and current condition, nevertheless her prescriptions for course corrections, like Chapter 6 – Eight Ways to Improve the World, are right on target. The overall message throughout the book though is timely and positively impactful.

Sustainable Enterprise is an attempt at arranging a scattered body of sustainable material and lean insights that places the discipline of lean at the center of sustainable exploration. Problem solving, continual improvement, and respect for humanity straddle both worlds nicely. As outlined in Chapters 7 – The Work of Problem Solving, and Chapter 8 – Impact Design and Enabling Tech, *Sustainable Enterprise* provides new approaches and methods needed for teachers and students to jumpstart their journey in sustainable continual improvement.

Sustainable Enterprise should be required reading for all university students, graduate and undergraduates alike, that are interested in sustainability, as all disciplines are affected, and all parties can and must contribute to a flourishing future. If we are to place people and planet at the center of our mindset for a path forward, *Sustainable Enterprise* is pointing us in the right direction by providing insights and methods for us to better learn about operating within living and natural systems.

Herman Daley once commented: “Not everything bears repetition, but truth does – especially when that truth is both denied by entrenched interests and verified by new information.” The truth is that sustainability, in all its dimensions, needs to be addressed as a system, as siloed efforts are not getting us there quickly enough. The challenge is to go beyond fragmentation, to go beyond the incompatible sets of values held by well-intentioned people, and to abandon superficial preferences in order to become aware of the wholeness of the totality of living. With Rose’s guidance in *Sustainable Enterprise*, we can view the world differently, see true sustainability, and confidently move forward in addressing the challenges of sustainability in the unstable years ahead. Those that read and tune in to the central message of *Sustainable Enterprise* will know that the future of humankind depends on which small contributions each single one of us can make here and now. It is that simple, we just have to work within nature’s system.

Dennis holds a full time lecturing role with the American University of Bahrain and sits on the teaching faculty for the California State University and Portland State University. Dennis is a service and operations executive with experience directing process improvement, supply management and socially responsible programs in highly competitive and rapidly changing environments.



SOUTH
AFRICA



Prof Justin Barnes

Rose has written a highly innovative book that should capture the attention of business leaders and academics alike. By bringing her vast lean experience and knowledge to the global sustainability challenge, Rose provides deep reflections on how the foundational philosophies underpinning lean can drive the progress of sustainability. The book offers a range of practical steps to incrementally (and sometimes even more dramatically) progress sustainability. Underpinned by Rose's experience in successfully driving lean transformation processes within organisations, these practical steps are expertly grounded in the problem-solving frameworks used for genuine lean transformation. As expertly highlighted by Rose, by placing people at the centre of the lean and sustainability transition, practical lean tools hold the potential to support an economic, social, and environmental transformation that leads to a truly sustainable world.

Justin is the Founder, Former Chairman and Ambassador for TWIMS (Toyota Wessels Institute for Manufacturing Studies) and Chairman of B&M Analysts. Justin is highly respected in both academic and industry communities, as a leader in industry policy development, benchmarking and clustering methodologies, and world-class manufacturing. He helped to formulate the clothing and textile industry policy as well as the automotive industry policy in South Africa for the past decade. He has published a number of academic papers on the Motor Industry Development Programme (MIDP) and is one of the architects of the current Automotive Production and Development Programme (APDP).



NORWAY



Prof Daryl Powell

In *Sustainable Enterprise*, Rose Heathcote takes us on a global gemba walk and challenges us to combine lean, green, and digital to build enterprise resilience in order to take care of the planet for future generations. Acting as curator on this insightful learning tour, Rose shows us a collection of theories, tools and methods to accelerate our learning, shares stories that help us understand what is truly possible, and challenges us to pluck up the courage to ask the tough questions that will help us discover the real problems that we need to solve on our way to a more sustainable future. Rose revisits the lean phenomenon, presenting it as a learning system for solving the problems that matter, before sharing a plethora of perspectives aiming for system-level development of the sustainable enterprise, from ground-up leadership to sustainable business model and value chain development; and from sustainable product design and engineering to the adoption of key enabling technologies.

Daryl is Chief Scientist and Research Manager at SINTEF Manufacturing, Adjunct Professor at both the Norwegian University of Science and Technology (NTNU) and the University of South-Eastern Norway (USN), Visiting Professor at the University of Bergamo, Italy and Professor of Practice in Digital Lean Manufacturing at the University of Wales Trinity Saint David (UWTSD). He has more than 150 publications and over 2000 citations and recipient of both the Shingo Research Award for the Routledge Companion to Lean Management and the Shingo Publication Award for the Lean Sensei.

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A WALK ABOUT THE WORLD

A global gemba walk
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A SUSTAINABLE
ENTERPRISE IS
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Lean principles
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LEAD
THE
CHANGE

On the ground
leadership



LARGE
SCALE
CHANGE
REQUIRES
ALL HANDS
ON DECK



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**BUILDING
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THAT MAKE
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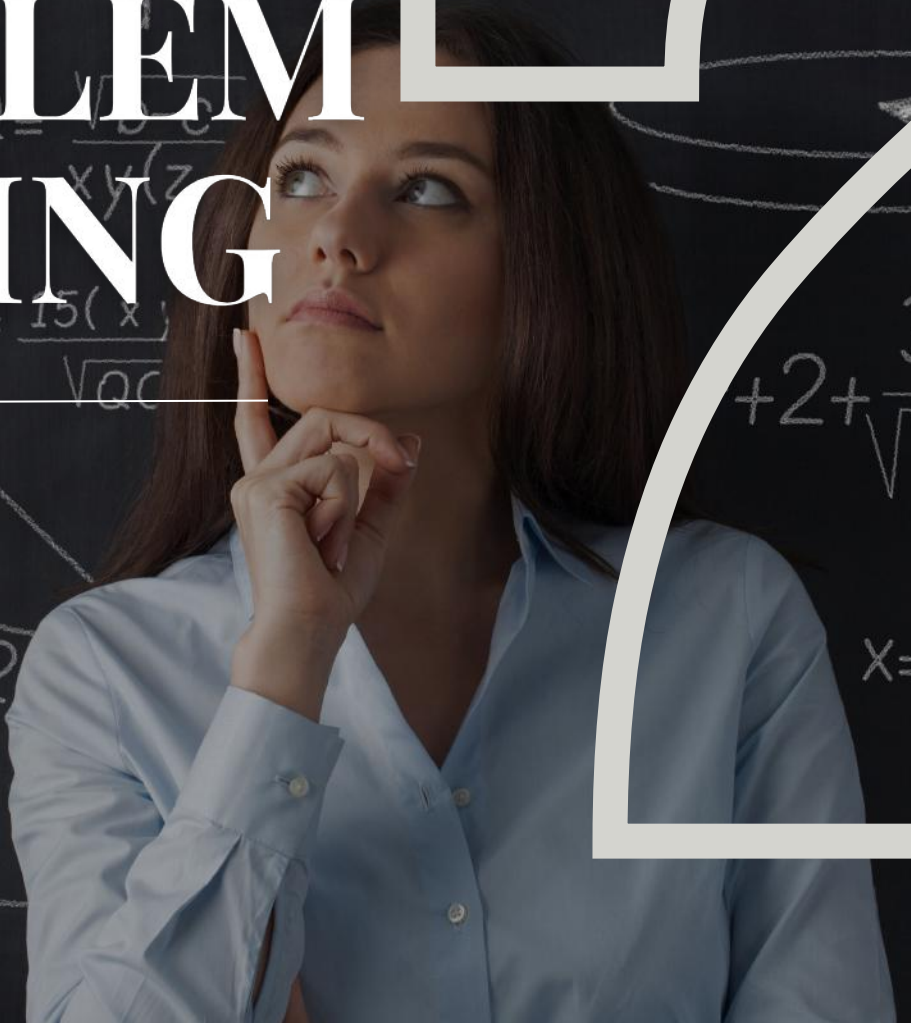
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IMPACT DESIGN & ENABLING TECH

Powered by
lean thinking



**MORE VALUE
AND LOWER
IMPACT
THROUGH
SUSTAINABLE
DESIGNS AND
ENABLING
TECHNOLOGY**



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**A SCIENCE-BASED
PATHWAY
TOWARDS
NET ZERO**



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Chapter

THE STORY OF YOUR PRODUCTS

A life cycle perspective

EVERYTHING
HAS A
STORY



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